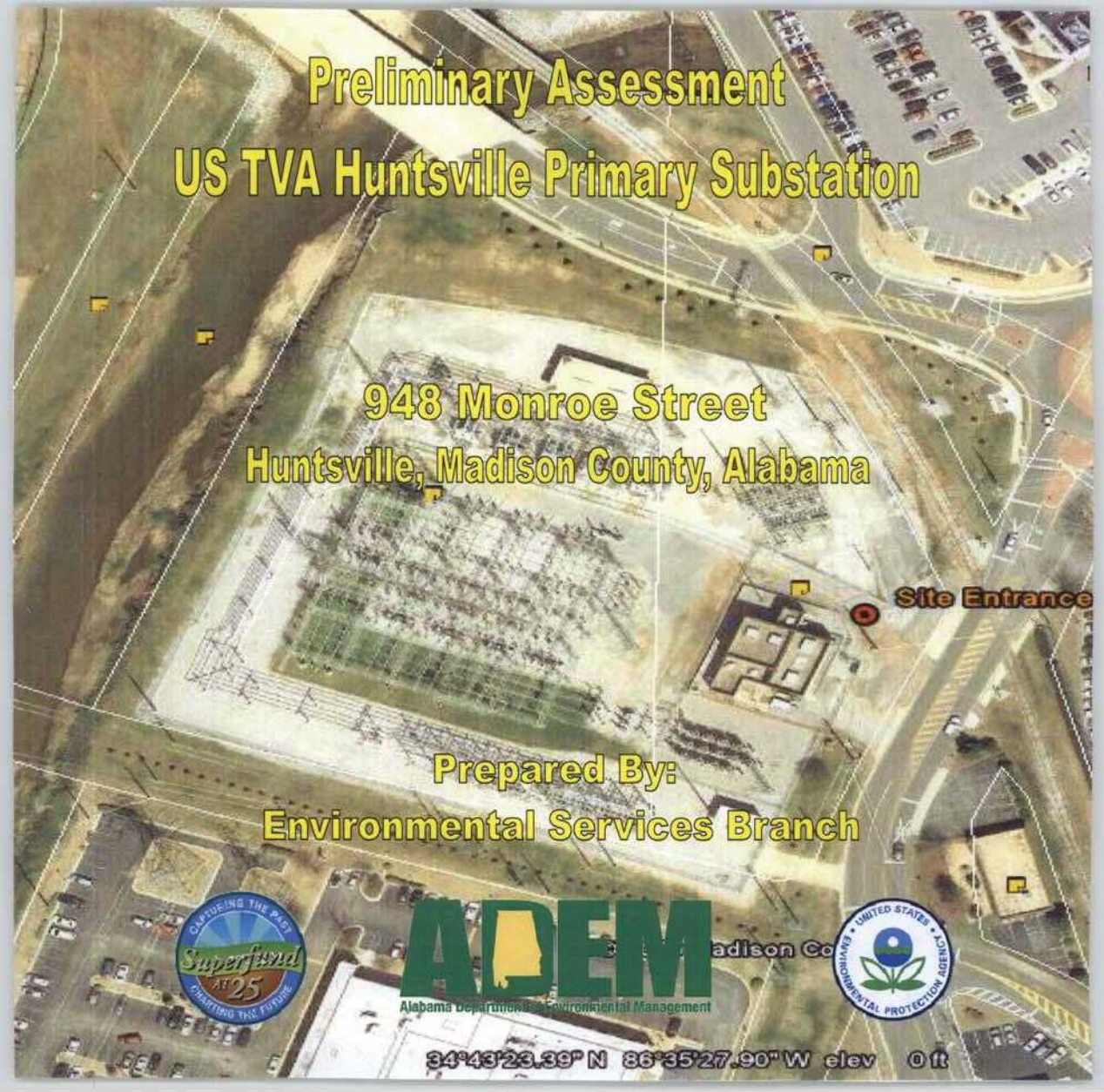
Preliminary Assessment
US TVA Huntsville Primary Substation
948 Monroe Street
Huntsville, Madison County, Alabama
Site Entrance
Prepared By:
Environmental Services Branch
Superfund at 25
ADEM
Alabama Department of Environmental Management
34°43'23.39" N 86°35'27.90" W elev 0 ft

LANCE R. LEFLEUR
DIRECTOR

ROBERT J. BENTLEY
GOVERNOR

Alabama Department of Environmental Management
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1400 Coliseum Blvd. 36110-2400 ▪ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ▪ FAX (334) 271-7950

December 20, 2012

Ralph O. Howard, Jr., P.G.
Remedial Project Manager,
US Environmental Protection Agency, Region 4
61 Forsyth Street SW
Atlanta, Georgia 30303

RE: CERCLA Preliminary Assessment
US TVA Huntsville Primary Substation
948 Monroe Street
Huntsville, Madison County, Alabama 35801
EPA ID No. AL1640090014

Dear Mr. Howard:

In accordance with our current CERCLA grant workplan, ADEM personnel performed a CERCLA Preliminary Assessment at the US TVA Huntsville Primary Substation Site in Huntsville, Madison County, Alabama. The business is an active substation serving 30 percent of Huntsville, Alabama.

The CERCLA Preliminary Assessment was performed to ascertain whether sources and targets exist such that, by use of the Quickscore software, we can determine if there is any potential threat to human health and the environment, and if the site should proceed further in the CERCLA process. The area of PCB contaminated soils were removed, clean closed, and disposed of at an approved facility. A Draft HRS Scoresheet was not completed since there is no source area.

If you have any questions concerning this reassessment, please contact Bonnie L. Temple, at 334 271-7703.

Sincerely,

Ronald T. Shell, Chief
Assessment Section
Environmental Services Branch
Land Division
334-271-7968

RTS/blt

attachment

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S. W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
4171 Commanders Drive
Mobile, AL 36615-1421
(251) 432-6533
(251) 432-6598 (FAX)

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ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

CERCLA Preliminary Assessment
TVA Huntsville Primary Substation Site
Madison County, Alabama

1. INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), the Superfund Amendments and Reauthorization Act of 1986 (SARA), and a cooperative agreement between the United States Environmental Protection Agency (EPA) and the Alabama Department of Environmental Management (ADEM), a Preliminary Assessment (PA) was conducted at the Tennessee Valley Authority (TVA) Huntsville Primary Substation site (the Site) at 948 Monroe Street, Huntsville, Madison County, Alabama. The assessment was to evaluate the Site's environmental condition and to determine if further CERCLA action is warranted. The scope of the investigation included a review of available file information, a comprehensive target survey, and off-site/on-site reconnaissance.

2. SITE DESCRIPTION AND OPERATIONAL HISTORY

2.1 Location

The Site is at 948 Monroe Street, in downtown Huntsville, Madison County, Alabama. The geographic coordinates of the Site's gate is 34° 43' 22.818" N latitude and 86° 35' 26.7426" W longitude. (Figures 1, 2; References 1, 2; Attachment 1).

Madison County's climate is temperate with hot summers, mild winters, and precipitation during all months of the year. The average annual rainfall for Huntsville (Huntsville Weather Service Office Airport), Alabama is 57.02 inches. The average annual temperature is 60.7°F, with an average summer temperature of 78.2°F and average winter temperature of 42.0°F (Ref 3).

2.2 Site Description

The substation is entirely fenced and the gates are locked unless workers are present. Three additional areas inside the property have been subdivided by fences to restrict access inside the substation proper. The majority of the property is covered in gravel with an L-shaped portion of grass under the northern and western portion of the property. There is a vacant building in the front, central portion of the Site along Monroe Street. North of the entrance are Huntsville Utilities' (HU) switch yard and the TVA main Switch House. West are TVAs capacitor bank and the third switch yard belonging to HU. Railroad tracks are in the northeast corner of the property.

Huntsville-Madison County Main Library, the Health Care Authority of The City of Huntsville, Pinhook Creek, the Von Braun Center and Embassy Suites are in close proximity of the Site. The Site is comprised of three separate parcels: 1701021000009.000, 1701021000059.000, and 1701012000009.000. (Fig 3; Ref 4; Att 3)

2.3 Operational History

The Site is a transformer substation owned by HU (Ref 5). HU and TVA own the equipment in the substation. Currently this substation supplies electricity to 30% of the City of Huntsville, Alabama, or 54,036 individuals (Ref 6). (Att 4)

At one time the Site address was 250 Pollard Street (Ref 7). Due to changes in the downtown Huntsville area, the entrance to the Site was moved to 948 Monroe Street.

Information obtained from TVA stated that a PCB spill occurred on June 13, 1990, when TVAs Capacitor Bank 862 was being switched into service. A bird in the "cap bus" caused an arc between two capacitors which caused a hole. EPA was notified of the spill (Case No. 26741). Less than one gallon of PCB was spilled inside the fenced area covered with limestone gravel. A four foot by four foot by three foot deep area of material was removed. After cleanup activities, the remaining soil tested less than 50 µg/kg for PCB. The area was covered with new soil and gravel. The waste materials were sent to TVA Muscle Shoals Power Service Center (Manifest TVA-0003372) for disposal. One drum contained three capacitors. Nine additional drums of solids contained rags, soil, PCB, and line material. Nine drums of cleanup solids were added to a shipment of other drums and disposed at Chemical Waste Management, Inc. in Emelle, Alabama. The drum containing three capacitors was added to a shipment of other capacitors and disposed at Rollins Environmental Services in Deer Park, Texas (Texas Manifest Doc. No. 00252004). (Ref 8, Att 5)

3. GROUNDWATER PATHWAY

3.1 Hydrogeologic Setting

Geologic units that outcrop in Madison County are of sedimentary origin and included deposits of Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, Pleistocene and Recent Age deposits as shown in Figures 6 and 7. The units exposed at the surface include Ordovician units of Sequatchie Formation and Brassfield Limestone, Devonian age Chattanooga Shale, Mississippian age Fort Payne Chert, Tuscumbia Limestone, Monteagle Limestone, Hartselle Sandstone, Bangor Limestone, Pennington Formation and Pennsylvanian age Pottsville Formation. Pleistocene and Recent age deposits are found along streams and drainage ways in the county.

The Pleistocene and Recent age deposits are generally horizontal and flat. Older units in the Jackson County Mountains strike northeast to southwest generally and dip in various directions. The older units in Highland Rim, the Site's location, generally strike east to west and dip to the south at about 20 feet per mile. The older units in the Highland Rim are on the south side of Nashville Dome centered near Nashville. Older units are at the center and younger units are found farther out from the center.

Rocks of Ordovician and Silurian are represented by Sequatchie Formation and Brassfield Limestone. These units are generally a grayish-green or yellowish-gray thin bedded calcareous shale and calcareous mudstone and medium-gray partly sandy and glauconitic medium to coarse grained bioclastic limestone.

The Devonian Chattanooga Shale is characterized as a dark gray to black thinly bedded shale with occasional sandstone at the base. The unit varies in thickness in Madison County from a few feet to ten feet.

The Mississippian age Fort Payne Chert is a dark gray siliceous limestone with abundant beds of dark gray nodular chert. The unit is thin- to thick-bedded and fine- to coarse-grained. In areas a light olive-gray claystone or shale (Maury Formation) occurs.

The Mississippian Tuscumbia Limestone is a light gray limestone that is partly oolitic near the top and fine to very coarse grained bioclastic in most other areas. Nodules and concretions of light gray chert occur throughout the limestone.

The Mississippian Monteagle Limestone is a light gray oolitic limestone. The Hartselle Sandstone overlies the Monteagle Limestone and consists of light-colored thick-bedded to massive quartzose sandstone containing some interbeds of dark gray shale. The Bangor Limestone overlies the Hartselle Sandstone and consists of a medium gray bioclastic and oolitic limestone with interbeds of reddish and olive-green mudstone in the upper part.

The Mississippian age Pennington Formation consists of medium gray shale containing interbedded limestone, dolomite, argillaceous sandstone and reddish to grayish-olive mudstone.

The Pennsylvanian age Pottsville Formation, which overlies the Pennington Formation, is a light gray thin to thick-bedded quartzose sandstone and conglomerate containing interbedded dark gray shale, siltstone and coal.

The youngest deposits are Pleistocene terrace deposits and Holocene deposits along the streams and rivers. Pleistocene deposits consist of varicolored lenticular beds of sand, silt, clay and gravelly sand. Holocene deposits resemble Pleistocene deposits; however, they are found at lower elevation and generally in the stream and river beds.

The major aquifer in Madison County yielding water is Tuscumbia-Fort Payne Aquifer. This aquifer consists of three units: Monteagle Limestone, Tuscumbia Limestone and Fort Payne Chert. The aquifer is recharged throughout its outcrop generally north of the Tennessee River in Madison and Limestone Counties. Flow within the aquifer is to the south.

Precipitation infiltrates and percolates through the residuum into the Mississippian carbonates. These carbonates are indurated and thoroughly cemented providing very little inter-granular space. Consequently, carbonates' porosity and permeability are related to stress-relief (vertical) and bedding-plane (horizontal) fractures. This secondary porosity and permeability varies significantly over short distances. Solution activity can enlarge the fractures increasing porosity and permeability.

Yields within Tuscumbia-Fort Payne Aquifer vary greatly depending on screen and well locations. Two municipal wells belonging to HU are within 4 miles of the site as seen in Figure 10. Dallas Well is drilled to 104 feet and produces up to 3,200 gallons per minute (gpm).

Lincoln Well is drilled to 106 feet and produces up to 3,200 gpm. Both are about 2 miles north-northeast of the Site. (Att 2)

3.2 Groundwater Targets

The only public drinking water supplier within a 4-mile radius of the site is Huntsville Utilities (HU) System No. AL0000882. There are three known public drinking water wells within the four-mile radius of the site. Braham Springs (SP002) and Lowe Mill Well (WL0006) have been permanently closed (Personal Communication Huntsville Utilities). The HU is a blended system that uses 20 percent groundwater from 4 active wells and 80 percent surface water from two intakes. The HU supplies drinking water to a population of 219,168. Three water systems in the area have historically purchased water from the HU on a permanent basis: Madison County Water Department, New Hope Water System, and Triana Water Works. Four water systems purchase water from HU on an emergency basis only: Gurley Water System, Madison Water Works & Sewer, Owens Crossroads Water Authority, and US Army Aviation & Missile Command. (Ref 9, Att 1)

There is no active well is within the 0 to 1 mile distance rings. Wells WL004 and WL005 are north of the Site between the 1 to 2 mile distance rings and supply 219,168 individuals. No active drinking water wells or springs are between the 2 to 4 mile distance rings east-southeast of the Site. (Atts 1, 2)

According to Huntsville Utilities Wellhead Production Report and Geological Survey of Alabama's (GSA) Cave Study, it appears that the site does not lie on a fault, and the groundwater flow is away from the Dallas and Lincoln Wells. Therefore, it appears that no source has the potential of being impacted by contamination from the site. Public drinking water is readily available and the property does not lie within a Wellhead Protection Area. Due to the urban nature of the area, domestic drinking water wells are not expected in the vicinity of the Site. (Ref 10, 11)

3.3 Ground Water Conclusions

Groundwater for drinking water flows towards the Site; therefore, any potential contamination from the substation would not impact the drinking water for City of Huntsville.

4. SURFACE WATER PATHWAY

4.1 Hydrologic Setting

The Site is in central Madison County within the Highland Rim Physiographic Section near the boundary of the Cumberland Plateau Section shown in Figures 5 and 8. It is in the Tennessee Valley District of the Highland Rim. To the east is Jackson County Mountains District of Cumberland Plateau shown in Figure 5. Topography within the Tennessee Valley District is characterized by low relief and flat to rolling topography. The Jackson County Mountains District is characterized by relatively high relief due to dissection with steep sided hills or mountains. The land surface in the Tennessee Valley near the Site varies in elevation from about 600 feet National Geodetic Vertical Datum (NGVD) to 700 feet NGVD. Elevations on the mountains in the area vary from 960 feet NGVD to about 1620 feet NGVD.

The Site is adjacent to Huntsville Spring Branch in Figures 4 and 8. Precipitation falling on the surface will move into the city storm sewerage system or will move towards Huntsville Spring Branch. (Att 2)

4.2 Surface Water Targets

The Site's 15-downstream mile surface water pathway (SWP) is composed of two segments, Huntsville Spring Branch and Indian Creek. Huntsville Spring Branch flows along the western property boundary and is part of the Tennessee River watershed (Fig 5). There is one Probable Point of Entry (PPE) associated with the Site's SWP (Fig 6). The PPE is placed at the southwest corner of the property, but contaminants could enter the stream any place along the western property boundary. Huntsville Spring Branch makes up the first 13.5 miles of the SWP. Indian Creek makes up the remainder of the 15-downstream miles. (Att 1)

Huntsville Spring Branch is given a 2-year, 7-day low flow default value of 10 cubic feet per second (cfs). Indian Creek at Martin Road near Huntsville has a stream flow of 4.5 cfs (Ref 12). Both Huntsville Spring Branch and Indian Creek are listed as "Fish & Wildlife" (Ref 13, 14). There are less than 100 pounds of fish and aquatic organisms per year caught for food consumption in the Huntsville Spring Branch and Indian Creek streams. There are no fish advisories for either Huntsville Spring Branch or Indian Creek (Ref 15). The analytical data for the sample location can be found in Reference 15. The Site is in the 100-year floodplain (Ref 16). Area streams have flooded in 1963 and 1973. The Geological Survey of Alabama's Atlas Series 8 written in 1975 shows downtown Huntsville during the 1973 flood. The Site has been highlighted on the enclosed map (Ref 17). There are no drinking water intakes along the 15 downstream miles (Ref 9; Att 1).

The 20 endangered/threatened species for Madison County are the Alabama lampmussel, *Lampsilis virescens* (endangered); Pink mucket pearlymuscle, *Lampsilis abrupta* (endangered); Finerayed pigtoe, *Fusconaia cuneolus* (endangered); Rough pigtoe, *Pleurobema plenum* (endangered); Shiny pigtoe, *Fusconaia cor.* (endangered); Spectaclecase mussel, *Cumberlandia monodonta* (proposed endangered); Slabside pearlymuscle, *Lexingtonia dolabelloides* (Candidate); Snuffbox mussel, *Epioblasma triquetra* (proposed endangered); Rabbitsfoot muscle, *Quadrula cylindrica cylindrica* (Candidate); Sheepnose mussel, *Plethobasus cyphyus* (proposed endangered); Alabama cave shrimp, *Palaemonias alabamae* (endangered); Snail darter, *Percina tanasi* (threatened); Spotfin Chub, *Erimonax monachus* (threatened); Slackwater darter, *Etheostoma boschungi* (threatened); Price's potato-bean, *Apios priceana* (threatened); Morefield's leather flower, *Clematis morefieldii* (endangered); Indiana bat, *Myotis sodalis* (endangered); Gray bat, *Myotis grisescens* (endangered); Armored snail, *Pyrgulopsis (=Marstonia) pachyta* (endangered); Slender campeloma, Campeloma decampi (endangered); and the Bald Eagle, *Haliaeetus leucocephalus* (protected under the Bald and Golden Eagle Protection Act) (Ref 18). The wetland is classified as palustrine forested, deciduous scrub or emergent wetlands (permanent to seasonally flooded). The closest wetlands are 3.99 miles south of the Site (Fig 5, 6; Ref 19). There are 19.36 miles of wetlands along the 15-mile surface water pathway (Fig 5).

4.3. Surface Water Conclusions

The PPE is at the southwest boundary and surface water flows south away from the Site. There are no surface water intakes along the SWP. There are multiple sensitive environments along the SWP. Several protected species are expected to utilize portions of the SWP, and there are 19.36 miles of combined wetland frontage along Huntsville Spring Branch and Indian Creek. The Site is in the 100-

year floodplain. No sampling of the SWP was conducted. The Site is not expected to be a contributing source of contamination to this pathway.

5. SOIL EXPOSURE AND AIR PATHWAYS

5.1 Physical Conditions

The 1958 Soil Survey of Madison County, Alabama, by the Natural Resources Conservation Service identifies the location as being on a relatively flat area adjacent to Huntsville Spring Branch on Decatur and Cumberland silty clay loam and/or Huntington fine silt to fine sandy loam. Slopes of these soils vary from 0 percent to 6 percent. The soils are well drained and are deep soils derived from limestone bedrock. Permeability of the soils varies from moderate (0.6 to 2.0 inches per hour) to moderately rapid (2.0 to 6.0 inches per hour). The soils are classified as silty clays or clayey sand. Huntington soils are frequently subject to overflow. (Att 2)

5.2 Soil and Air Targets

The substation is surrounded by a locked, gated fence and is not accessible to the public. There are no known schools, daycare centers, or residences within 200 feet of the Site. The nearest business is 125 feet to the south. The Environmental Justice status of the Site is minority and low income (Fig 7, Ref 20). See Site Description for further information. (Fig 1, 2; Att 1)

The 2010 U.S. Census states that the average household size for Huntsville, Alabama, is 2.31 persons. According to this Census, the population within one mile of the Site is 6,505 persons (Ref 6). The estimated total population within a 4-mile radius of the site is 93,841. The population distribution is summarized in Table 1 (Att 1).

Table 1
CERCLA Preliminary Assessment
US TVA Huntsville Primary Substation Site
Madison County, Alabama
Demographic Data
4-mile Radius

Distance (miles)	**Population**
0.00-0.25	43
0.25-0.50	1,478
0.50-1.0	4,984
1.0-2.0	23,169
2.0-3.0	34,199
3.0-4.0	29,968
Total Population	93,841

The 1990 PCB spill was cleaned up, and waste materials were sent to the TVA Muscle Shoals Power Service Center. Final disposition of capacitors and waste materials are discussed in Section 2.3 (Fig 1, Att 2).

5.3 Soil Exposure and Air Pathway Conclusions

Soil contamination from the 1990 PCB spill has been remediated, and there is no other known contamination. There are perimeter fences and gates to prevent entry to the various portions of the Site. There is no information to indicate an air pathway concern.

6. SUMMARY AND CONCLUSIONS

The Site is an active primary electrical substation in downtown Huntsville, Madison County, Alabama. Drinking water from groundwater is not impacted, and there is no surface water intake within the target distance. A PCB spill was discovered in 1990, remediated, and sent to approved disposal locations. There was no indication of soil or air contamination. The assessment indicates further CERCLA action is not warranted based on current information of the Site.

REFERENCES

1. Trimble Navigation Limited, Surveying & Mapping Division, GeoExplorer II, Operation Manual, Part Number 28801-00, Revision A, April 1996, pp 1-1 thru 1-6 - (Site Latitude and Longitude Table).

2. Google™ Earth, Google Enterprise Client, September 17, 2012, Figures 2-4, 7-9; http://google.com.

3. University of North Carolina, Chapel Hill, NC, "Period of Record General Climate Summary-Precipitation - Huntsville WSO AP. Alabama (014064)," The Southeast Regional Climate Center, October 2, 2012, http://www.sercc.com/cgi-bin/sercc.

4. Delta Computer Systems, Madison County, Alabama, Parcel information for US TVA Huntsville Primary Substation,, September 12, 2010, <http://www.deltacomputersystems.com/AL/AL47/index_assessor.html

5. Huntsville Utilities, history, http://www.hsvutil.org, October 24, 2012.

6. United States Census Bureau, Huntsville (city), Alabama, QuickFacts from the US Census Bureau, http://quickfacts.census.gov/qfd/states/01/0137000. html, October 2, 2012.

7. EPA, Envirofacts website, Facility Detail Report, US TVA Huntsville Primary Substation, <http://oaspub.epa.gov/enviro/efsystemquery.cerclis, December 14, 2011.

8. Gallant, Douglas M., Tennessee Valley Authority, PCB Spill Cleanup Report, July 13, 1990.

9. ADEM Drinking Water Watch, Huntsville Utilities (AL0000882):Apportionment Table for Surface Water and Ground Water Sources, Mr. Jim Reynolds, Huntsville Utilities, http://adem-sdwis:8080/NDDWW2Prod/JSP/Water System Detail, October 18, 2012.

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11. Rheams, Karen F., Paul H. Moser, and Stuart W. McGregor, US Geological Survey, "Geologic, Hydrologic, and Biologic Investigations in Arrowwood, Bobcat, mathews, and Shelta Caves and Selected Caves, Madison County, Alabama," Tuscaloosa, Alabama, 1992.

12. US Geological Survey, "Low-Flow and Flow-Duration Characteristics," Water-Resources Investigation Report 93-4186, Tuscaloosa, Alabama, 1994.

13. ADEM, Final Tennessee River Basin Classified Waters, ADEM Water Division-Water Quality Program Chapter 335-6-11, Water Use Classifications for Interstate and Intrastate Waters, Effective Date: January 12, 2001.

14. ADEM, Water Division - Water Quality Program, "Water Use Classifications for Interstate and Intrastate Waters." Admin. Code R. 335-6-11-.01 and 11-.02. Revised Effective: May 27, 2008, and May 23, 2011.

15. Alabama Department of Public Health, 2012 Alabama Fish Consumption Advisory, Analytical Data for Sample Location WHEL-3, September 17, 2012.

16. US Department of Housing and Urban Development, National Flood Insurance Program, Flood Insurance Rate Map Madison County, Alabama, and Incorporated Areas, Madison County, Alabama, Community-Panel Number 01089C0323B, Effective April 20, 1996.

17. LaMoreaux, P. E., Geological Survey of Alabama, "Environmental Geology and Hydrology - Huntsville and Madison County, Alabama," Atlas Series 8, Date 1975.

18. US Fish and Wildlife Service, Daphne Ecological Services Field Office: Alabama's Federally Listed Species By County, Last Updated April 2011, Madison County, http://wwecos.fws.gov/telss_public/countySearch!speciesByCounty Report.action?fips=0089, March 13, 2012.

19. US Fish and Wildlife Service, National Wetland Inventory, Wetlands and Deepwater Habitats Classification, and Wetlands and Deepwater Habitats Mapping Codes, http://www.fws.gov/wetlands, April 10, 2012.

20. US EPA Region 4, Office of Environmental Accountability, Environmental Justice Data Layer: Census 2000 STF3 File, Date 2002.

ATTACHMENTS

1. Ford, Joseph L., ADEM, Comprehensive Exposure Pathway Target Map, Map assembled and graphic additions made utilizing ArcView© GIS 3.2, Background image U.S.G.S. 7.5 Minute Series (Scale 1:24,000) Topographic Quadrangle Maps of Alabama: Farley, Huntsville, Jeff, Madison, Maysville, Merridanville, Moontown, New Hope and Triana, Alabama, March 23, 2012.

2. Blake, Alan, ADEM, CERCLA Preliminary Assessment, US TVA Huntsville Primary Substation EPA ID No. AL1640090014, Huntsville, Madison County, Alabama, June 12, 2012.

3. Temple, Bonnie L., ADEM, CERCLA Trip Report (maps, photographs) for US TVA Huntsville Primary Substation, Trip date: January 18, 2012.

4. Temple, Bonnie L., ADEM Communication with Mr. Mike Counts, Huntsville Utilities, October 5, 2012.

5. Temple, Bonnie L., ADEM Communication with Tennessee Valley Authority, December 6, 2011, through December 7, 2012.

FIGURE 1

Figure 1: Location for US TVA Huntsville Primary Substation and vicinity aerial showing downtown Huntsville, Alabama. Pinhook Creek flows to the south. (Google EC)

FIGURE 2

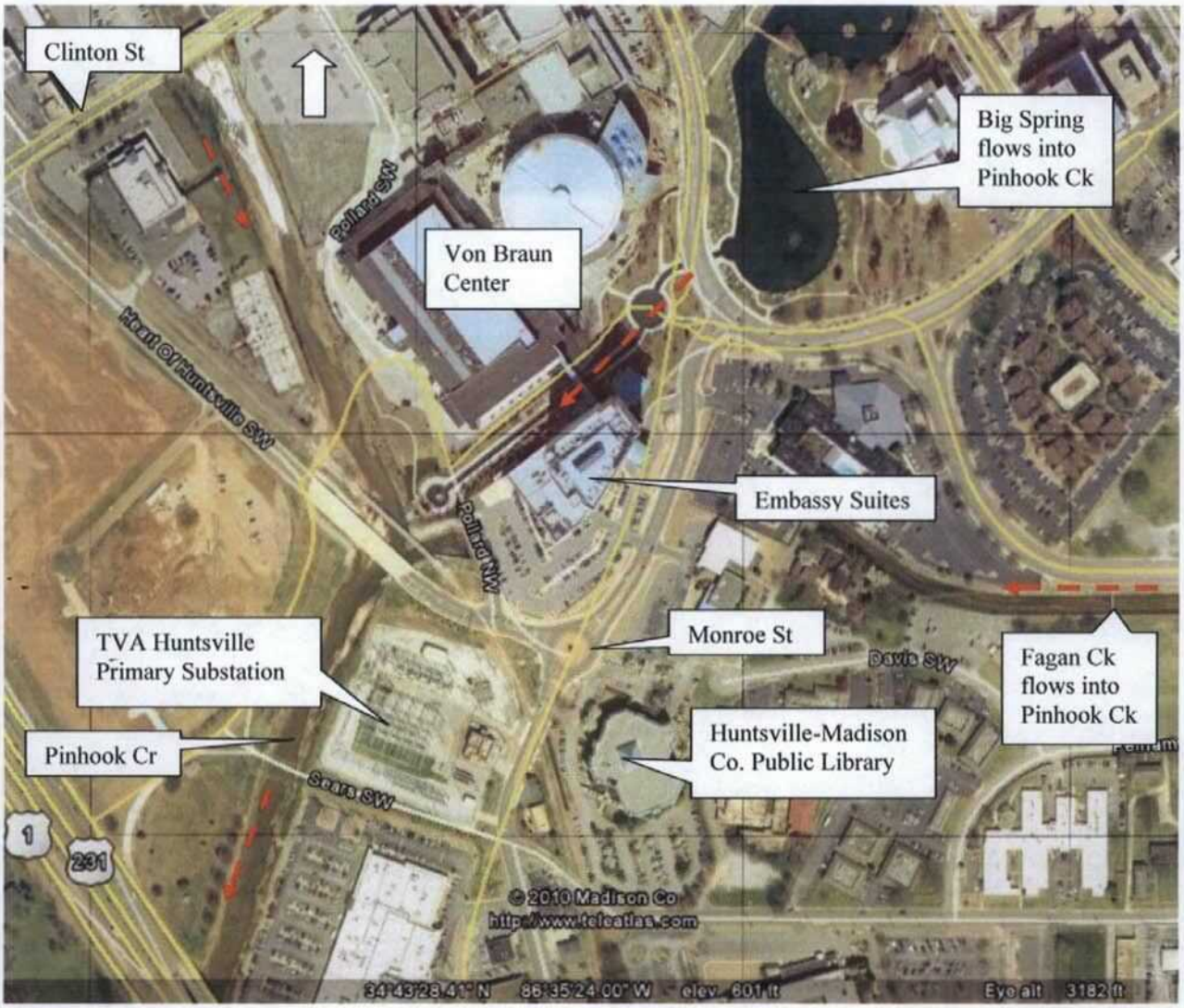


Figure 2: Aerial view of downtown Huntsville showing the US TVA Huntsville Primary Substation and vicinity. The flow direction for area creeks are shown in red dash arrows. (Google EC)

FIGURE 3

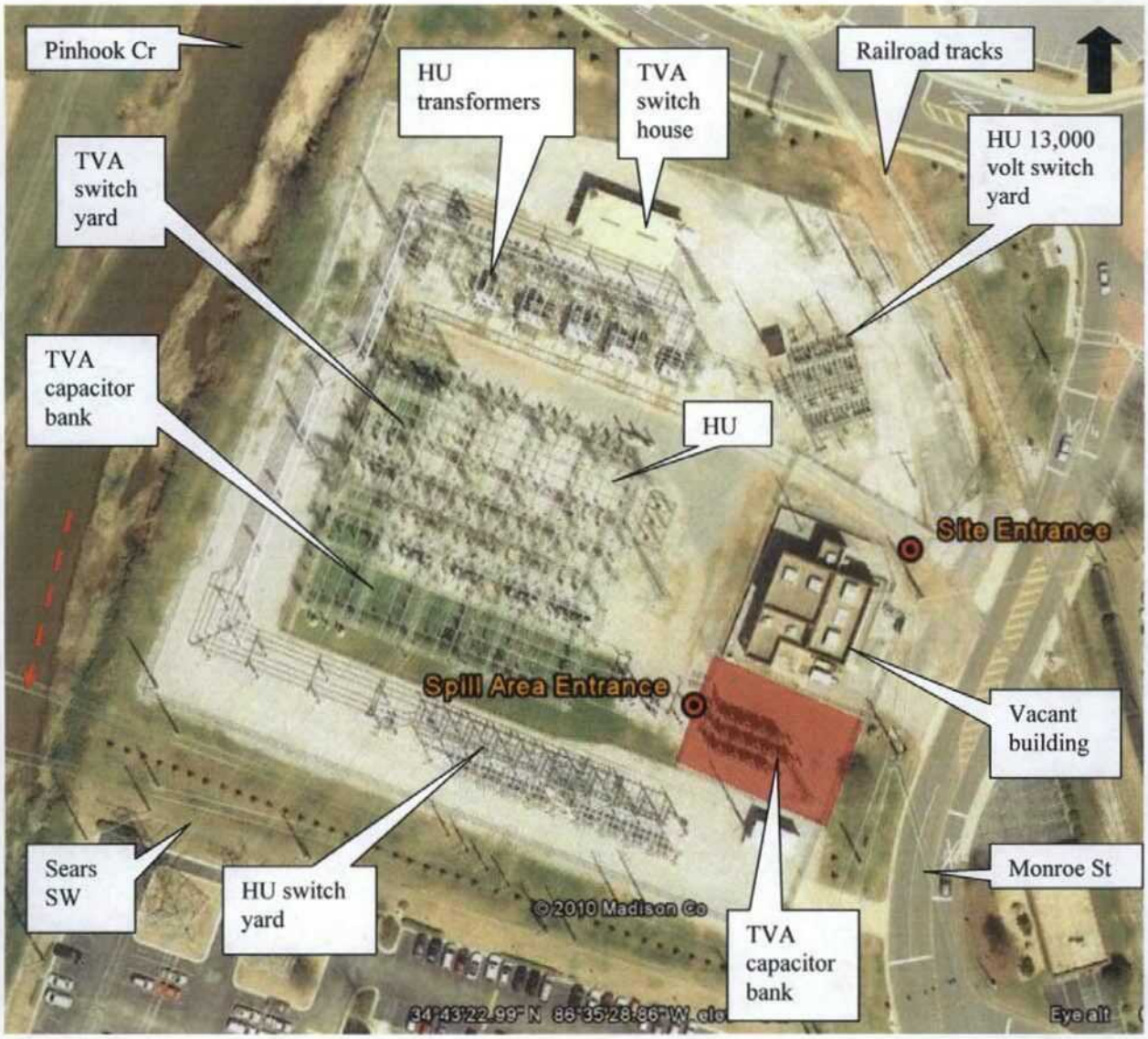


Figure 3: Close up aerial view of the fenced US TVA Huntsville Primary Substation showing the equipment and designated owner. Huntsville Utilities' property designated as HU while TVA's property is designated TVA. Red area indicates location of PCB spill removal area. Pinhook Creek's flow direction is shown in a red dash arrow. (Google EC)

FIGURE 4

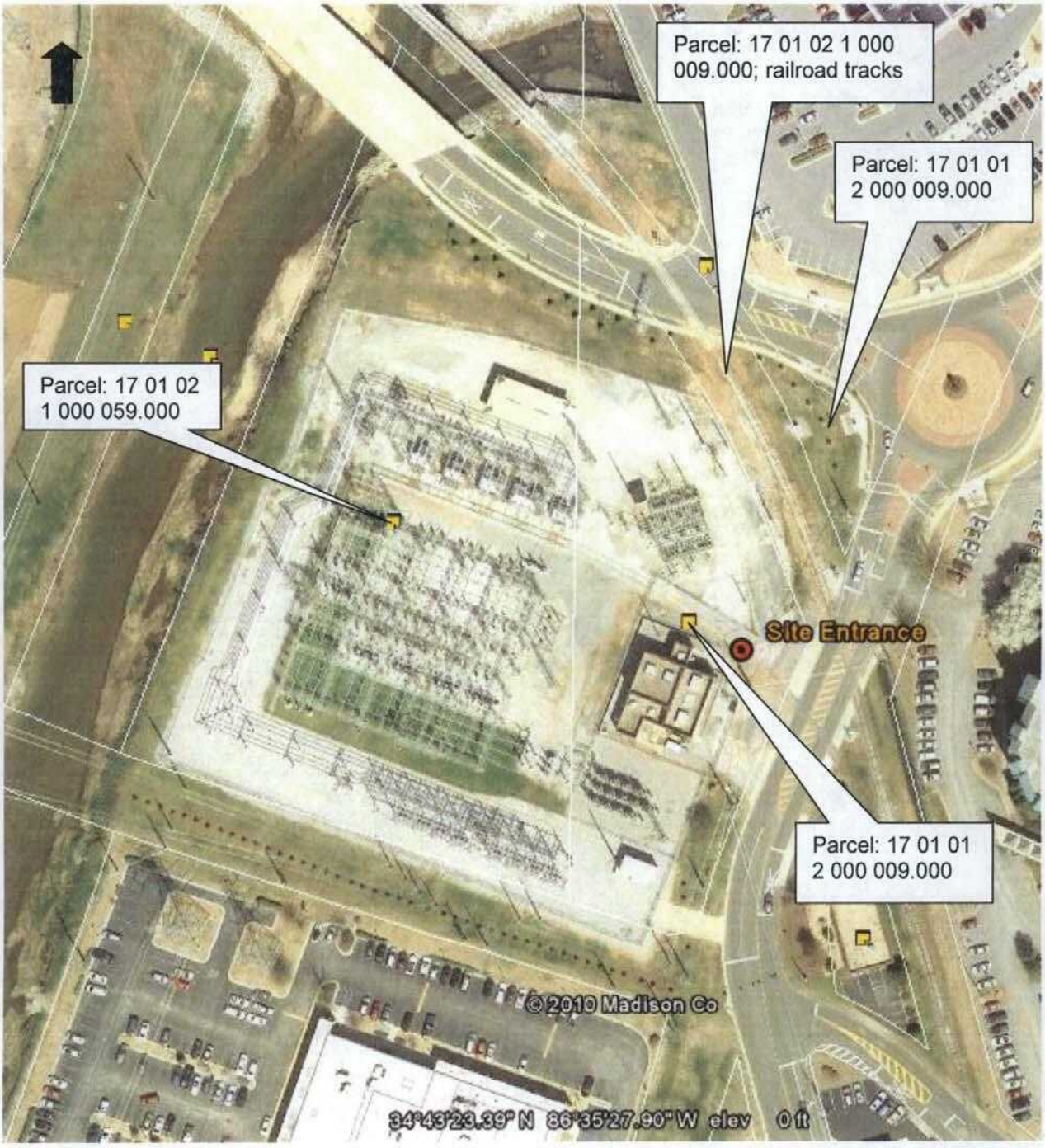


Figure 4: Close up aerial view of the US TVA Huntsville Primary Substation showing the parcels that make up the substation. The City of Huntsville owns all the property including the property on which the Embassy Suites is located. (Google EC and Madison County Tax Assessor)

FIGURE 5

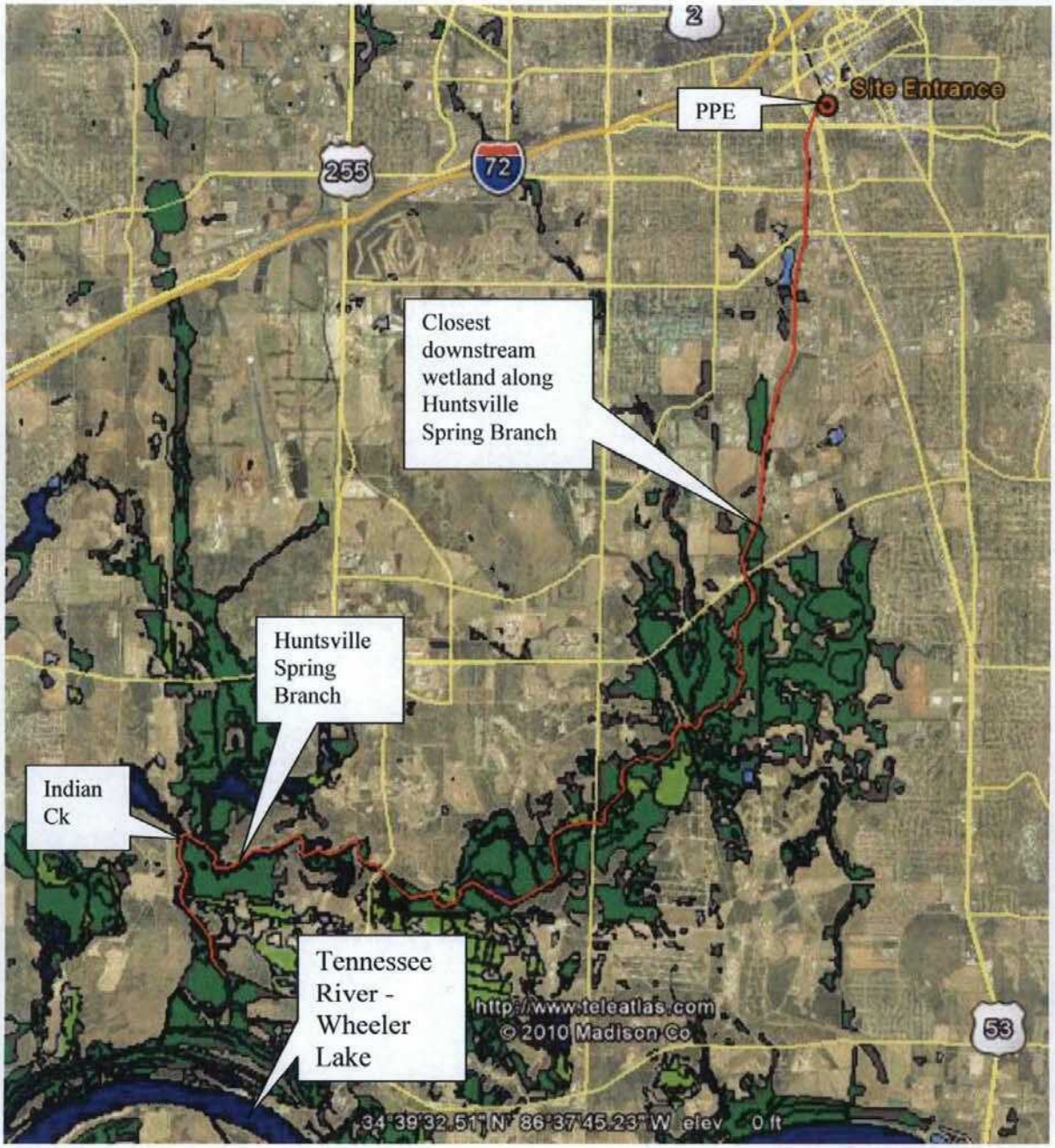


Figure 5: Wetlands map showing the 15-downstream miles surface water pathway and associated wetlands for US TVA Huntsville Primary Substation. (Google & Dept of Conservation)

FIGURE 6

Figure 6: Wetlands map showing the surface water pathway closest to the Site. Wetlands start 3.99 miles south of US TVA Huntsville Primary Substation. (Google & Dept of Conservation)

FIGURE 7

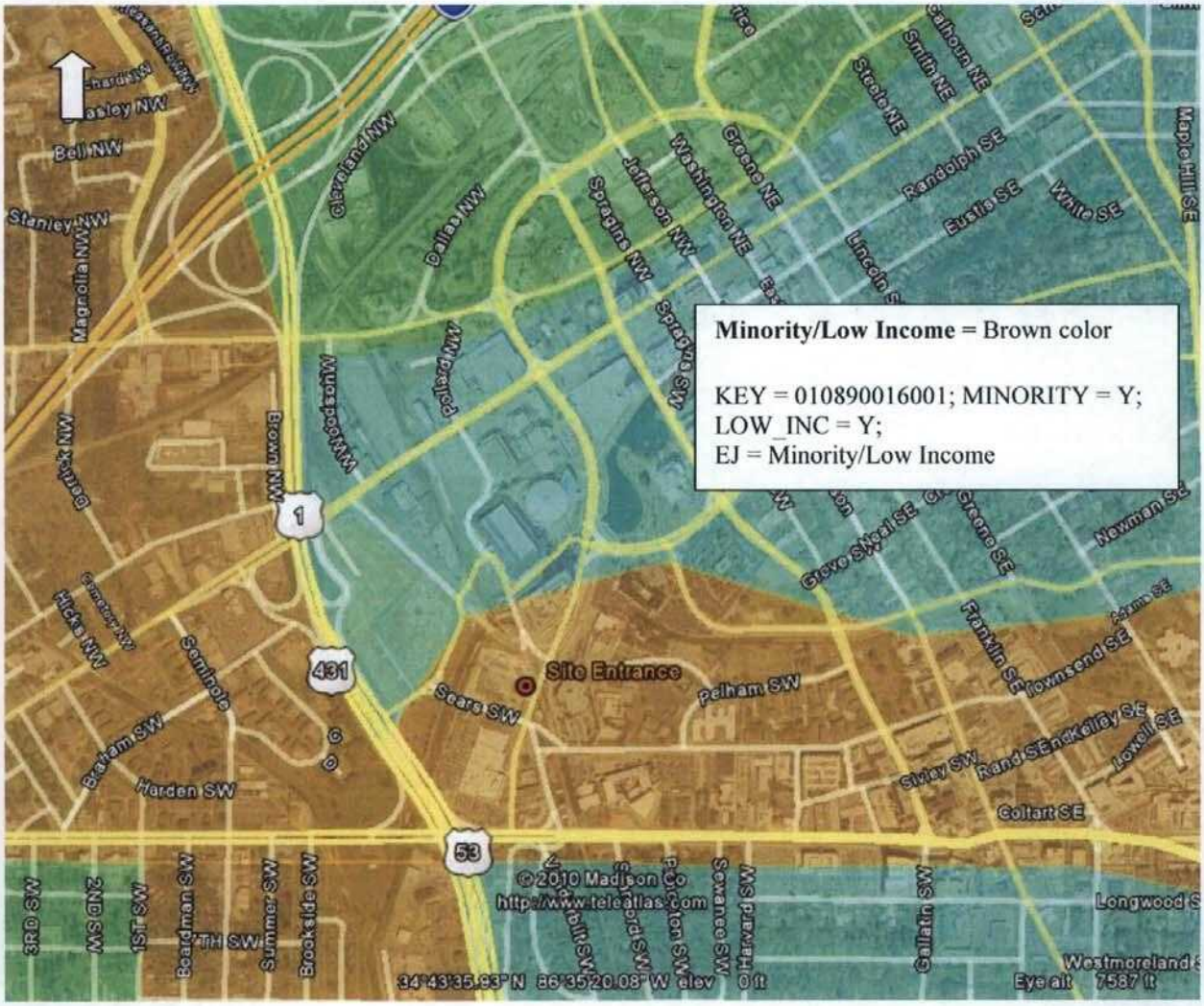


Figure 7: Environmental Justice map showing the status of the area surrounding downtown Huntsville and US TVA Huntsville Primary Substation, Madison County, Alabama. (Google EC)

Site Latitude / Longitude Data Collection
CERCLA Preliminary Assessment
US TVA Huntsville Primary Substation
Huntsville, Madison County Alabama

Latitude	North 34° 45' 26.5 deg
Longitude	West 87° 41' 40.3 deg
Point Represents	Northwest corner of site
Source Map Scale	N/A - map not used (GPS unit used)
Accuracy (meters + / -) (Std. Dev.)	
Collection Method	GPS - Code (Pseudo Range) Differential Position
Reference Datum	NAD83
Collection Date	February 28, 2012

1 GPS and the Pro XR and Pro XRS Receivers

The Pro XR and Pro XRS receivers are Trimble's high-performance Global Positioning Systems (GPS) receivers. They can be operated with one of the following controlling software systems designed for effective geographic data acquisition:

- Trimble's Asset Surveyor™ software running on the rugged TSC1, TDC1 and TDC2 data collectors
- Trimble's ASPEN™ software running on a user-supplied notebook or pen computer

The Pro XR and XRS receivers use differential GPS to provide submeter position accuracy on a second-by-second basis. NMEA-0183 messages and raw measurements in TSIP (Trimble Standard Interface Protocol) are also available, offering optimal flexibility when interfacing with other instruments.

1.1 What is GPS?

The Global Positioning System (GPS) is a satellite-based positioning system operated by the U.S. Department of Defense (DoD). The 24 operational NAVSTAR satellites orbiting the earth every twelve hours provide worldwide, all-weather, 24-hour time and position information. For more information regarding GPS concepts, refer to the *Mapping Systems General Reference*.

2 Accuracy

The accuracy of the Pro XR and Pro XRS receivers without real-time or postprocessed differential correction is 100 meters (2dRMS). After differential correction, the horizontal accuracy of each position is better than 50 cm (RMS) + 1 part-per-million (ppm) times the distance between the base and the rover. The vertical accuracy of each position is submeter +2 ppm times the distance between the base and the rover. Using real-time corrections, the accuracy of each position can be as good as submeter, but is subject to a number of operational conditions.

Note – 2dRMS means that approximately 95% of the positions are within the specified value. RMS means that approximately 68% of the positions are within the specified value.

2.1 Differential GPS Positioning

The Pro XR and Pro XRS receivers use differential GPS (DGPS) to achieve positions accurate to the submeter level. DGPS employs two or more receivers. One receiver, called the base station, is placed at a known point to determine the errors in the pseudoranges to the satellites. An unlimited number of other mobile receivers, called rovers, collect data at unknown locations within the vicinity.

Google Earth and Maps Enterprise

- Google Maps API for Business
- Google Earth Pro
- Google Earth Enterprise
- Google Maps Engine
- Customers
- Help

Google Earth Enterprise software features

Deliver fast and intuitive maps to your users with Google Earth Enterprise

Contact Sales

More information

- FAQs
- GIS and Google Earth Enterprise
- Customer stories

Features

- Components
- Portable
- Technical details

Industries

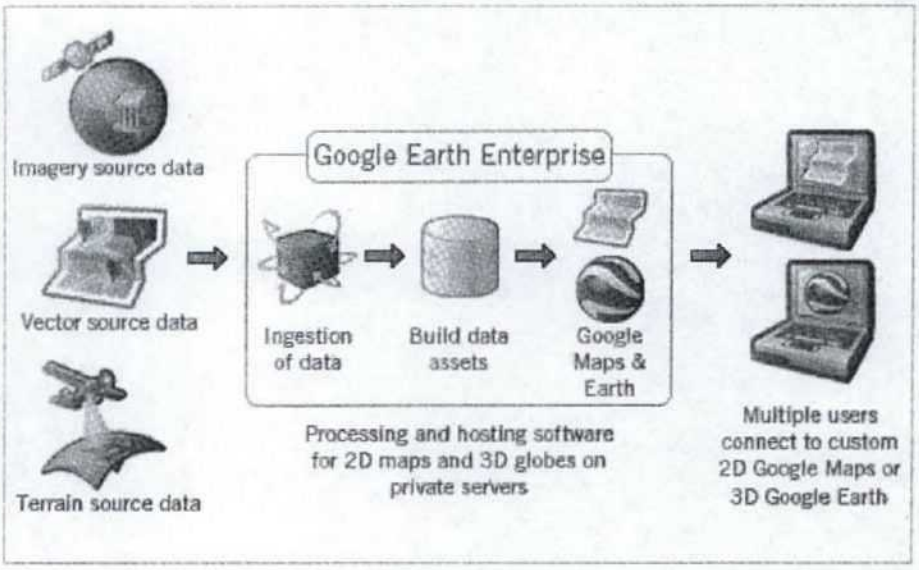
- State and local government
- Energy and Utilities
- Federal - Civilian
- Federal - Intel

Google Earth Enterprise is comprised of two distinct software packages that work together to build and host your private Google Earth and Google Maps layers. End users then view the complete Google Earth and Maps in the Google Earth Enterprise Client or in a browser like Google Maps.

- **Google Earth Enterprise Fusion** combines all of your imagery, terrain, KML, and vector data into a Google Earth globe or a Google Map.
- **Google Earth Enterprise Server Software** allows you to host your private or public globe or map for your users to access via Google Earth client or a Google Maps browser.
- **Google Earth Enterprise Client** is like the familiar Google Earth client – with more than 700 million downloads worldwide – but offers your users an easier way to view geospatial data over traditional desktop GIS software.
- **Google Earth API** gives your users the best of both worlds - allowing them to easily view your organization's data within a custom browser experience created by your developers.

Google technology for your geospatial data

Google Earth Enterprise uses similar processing and serving infrastructure that's used at Google to build and serve Google Earth and Google Maps to millions of users and brings it to your organization's data, allowing rapid and secure viewing. Web-based maps mashups can be easily built with your data through Google Earth Enterprise and data is securely viewable and accessible through the Google Earth Enterprise client or through a browser using the Google Earth or Google Maps API.



Supported platforms:

- Latest distributions of Ubuntu, Redhat, and SuSE

Supported Data:

- Standard vector data formats including shapefiles, tabfiles, gml, kml, and CSVs
- Standard imagery formats including GeoTIFF, IMG, JP2, MrSID
- Standard terrain formats including DTED, SDTS DEM, ASCII DEM, IMG, GeoTIFF

Methods to access mapping content:

- Google Earth Enterprise Client
- Google Earth API and the Google Earth Plugin
- Google Maps API

Serving and processing capacity:

- The Google Earth Server is licensed to support up to 1000 users during the licensing term, and can serve roughly 500 concurrent tile requests
- Google Earth Enterprise communities can vary from less than ten end users to upwards of several hundred thousand
- Google Earth Enterprise can process and serve roughly 100GB of data per day per CPU core. With support for grids and multi-core processing environments, customers can process and publish for immediate access upwards of several TBs of imagery, terrain, and vector data every day

Google Earth

Explore, Search and Discover

Change language English

- Home
- Downloads
- Products
- Product Tour
- Help

New! Google Earth Outreach: See how Google Earth is helping to change the world

Learn m
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Fe
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FA

Google Earth | Free

Google Earth combines the power of Google Search with satellite imagery, maps, terrain and 3D buildings to put the world's geographic information at your fingertips.

- Fly to your house. Just type in an address, press Search, and you'll zoom right in.
- Search for schools, parks, restaurants, and hotels. Get driving directions.
- Tilt and rotate the view to see 3D terrain and buildings.
- Save and share your searches and favorites.

Since Google Earth was launched, users have been exploring our world and creating content overlays (KML files) to share their explorations with others. We're now highlighting user-created KML files each week in the new Google Earth Gallery. You can also choose to add the gallery's Google Gadget to your iGoogle page.

View a world full of 3D content

Google Earth gives you a wealth of imagery and geographic information. Explore destinations like Maui and Paris, or browse content from Wikipedia, National Geographic, and more.

Explore popular places

View some of the most popular Google Earth content, published by many organizations and millions of users around the world. Open the files and browse them just like a document, but in a visually intuitive and interactive interface.

REFERENCE 3

HUNTSVILLE WSO AP, ALABAMA (014064)

Period of Record Monthly Climate Summary

Period of Record : 1/ 1/1959 to 4/30/2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	48.8	54.0	63.0	73.2	80.1	87.2	89.7	89.2	83.1	73.3	62.2	52.5	71.4
Average Min. Temperature (F)	29.8	33.2	41.1	49.5	57.9	65.7	69.4	68.3	61.9	49.5	40.3	33.4	50.0
Average Total Precipitation (in.)	5.16	4.72	6.61	4.88	5.10	4.15	4.64	3.62	4.23	3.48	4.76	5.75	57.09
Average Total SnowFall (in.)	1.7	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	4.1
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 100% Min. Temp.: 100% Precipitation: 100% Snowfall: 89.1% Snow Depth: 88.9%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Southeast Regional Climate Center, sercc@climate.ncsu.edu

HUNTSVILLE WSO AP, ALABAMA

Period of Record General Climate Summary - Temperature

From Year=1959 To Year=2012

Station:(014064) HUNTSVILLE WSO AP

Averages Daily Extremes

	Monthly Averages			Daily Extremes				Monthly Extremes				Max. Temp.		Min. Temp.	
	Max.	Min.	Mean	High	Date	Low	Date	Highest Mean	Year	Lowest Mean	Year	>= 90 F	<= 32 F	<= 32 F	<= 0 F
	F	F	F	F	dd/yyyy or yyyymmdd	F	dd/yyyy or yyyymmdd	F	-	F	-	# Days	# Days	# Days	# Days
January	48.8	29.8	39.3	76	13/1972	-11	30/1966	49.0	74	28.7	77	0.0	2.8	19.1	0.3
February	54.0	33.2	43.6	83	23/1996	1	04/1996	51.9	90	34.2	78	0.0	1.0	14.1	0.0
March	63.0	41.1	52.1	88	31/1963	6	03/1980	63.4	112	40.9	60	0.0	0.1	6.8	0.0
April	73.2	49.5	61.3	92	16/1967	26	01/1987	67.1	67	54.9	83	0.2	0.0	0.8	0.0
May	80.1	57.9	69.0	96	20/1960	36	03/1971	76.1	62	63.1	76	2.6	0.0	0.0	0.0
June	87.2	65.7	76.5	101	29/1969	45	01/1972	82.0	110	70.5	74	10.8	0.0	0.0	0.0
July	89.7	69.4	79.5	104	14/1966	53	15/1967	83.7	66	75.7	67	17.0	0.0	0.0	0.0
August	89.2	68.3	78.7	103	20/1990	52	29/1992	84.7	110	73.8	67	14.8	0.0	0.0	0.0
September	83.1	61.9	72.5	101	07/1990	37	30/1967	77.3	70	68.2	75	5.6	0.0	0.0	0.0
October	73.3	49.5	61.4	91	03/1959	28	27/1961	68.2	84	55.1	76	0.1	0.0	0.5	0.0
November	62.2	40.3	51.2	84	02/1961	15	24/1970	57.9	85	42.8	76	0.0	0.0	7.6	0.0
December	52.5	33.4	43.0	77	23/1970	-3	22/1989	51.7	84	33.8	89	0.0	1.2	15.9	0.1
Annual	71.4	50.0	60.7	104	19660714	-11	19660130	63.2	90	58.1	76	51.0	5.1	64.7	0.4
Winter	51.8	32.1	42.0	83	19960223	-11	19660130	47.5	112	35.4	78	0.0	5.0	49.0	0.4

Spring	72.1	49.5	60.8	96	19600520	6	19800303	64.5	67	57.0	83	2.8	0.1	7.6	0.0
Summer	88.7	67.8	78.2	104	19660714	45	19720601	83.5	110	75.3	72	42.5	0.0	0.0	0.0
Fall	72.9	50.6	61.7	101	19900907	15	19701124	66.4	73	55.6	76	5.7	0.0	8.1	0.0

Table updated on May 22,
For monthly and annual means, thresholds, and sums:
Months with 5 or more missing days are not considered
Years with 1 or more missing months are not considered
Seasons are climatological not calendar seasons
Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May
Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

Southeast Regional Climate Center, SERCC staff

Fran Hamilton

Tax Assessor
Madison County

Madison County Alabama

Search Page

Welcome to the Madison County, Alabama online Assessment and Appraisal record search. This search engine will return property information of record in Madison County. The information is uploaded to this server frequently but may lag behind actual activity at the courthouse.

To begin your search,
choose the link below.

Assessment and Real Property Appraisal

Emaps Plus with Appraisal Data

Land and Lot Books

Deeds & Records

Brought to you by:
Fran Hamilton
Tax Assessor

Parcels from Google EC

PPIN: 138087
Tax Dist: 02
Parcel: **17 01 01 2 000 009.000**

Name: CITY OF HUNTSVILLE
Address1: ATTN CAROLYN LOVE
Address2: P O BOX 308
City: HUNTSVILLE State: AL Zip: 35804-
Situs Addr: 0 MONROE ST Acres: 0

PPIN: 138219
Tax Dist: 02
Parcel: **17 01 02 1 000 059.000**

Name: CITY OF HUNTSVILLE
Address1: ATTN CAROLYN LOVE
Address2: P O BOX 308
City: HUNTSVILLE State: AL Zip: 35804-
Situs Addr: 0 ST CLAIR AVE Acres: 0

PPIN: 141487
Tax Dist: 02
Parcel: **17 01 02 1 000 009.000**

Name: CITY OF HUNTSVILLE
Address1: ATTN CAROLYN LOVE
Address2: P O BOX 308
City: HUNTSVILLE State: AL Zip: 35804-
Situs Addr: 0 Acres: 0

Fran Hamilton
Tax Assessor
Madison County

Assessment & Appraisal Link
MADISON COUNTY, AL

Current Date **10/12/2012** **Tax Year 2012**

OWNER INFORMATION

PARCEL	17-01-01-2-000-009.000	**PPIN** 138087	**TAX DIST** 02
NAME	CITY OF HUNTSVILLE		
ADDRESS	ATTN CAROLYN LOVE P O BOX 308 HUNTSVILLE , AL 35804		
OLD PARCEL	04-1W-01-0- -114.		
ACCOUNT	172015		
TAXABLE VALUE	604000	**ASSESSMENT VALUE**	120800
DEED TYPE	**BOOK**	**PAGE**	
PREVIOUS OWNER			
LAST DEED DATE	/ /0000		

DESCRIPTION

BLK 19 URBAN RENEWAL PROJECT ALA R-32
BIG SPRING AREA

PROPERTY INFORMATION

PROPERTY ADDRESS	MONROE ST		
NEIGHBORHOOD	COMMDWNTWN		
PROPERTY CLASS		**SUB CLASS**	
LOT BLOCK			
SECTION/TOWNSHIP/RANGE	00-00 -00		
LOT DIMENSION		**ZONING**	

PROPERTY VALUES

LAND:	604000	**CLASS 1:**		**TOTAL ACRES:**
BUILDING:		**CLASS 2:**	604000	**TIMBER ACRES:**
	=========	**CLASS 3:**		
TOTAL PARCEL VALUE:	604000			

DETAIL INFORMATION

CODE	TYPE	REF	METHOD	DESCRIPTION	LAND USE	TC	HsPn	MARKET VALUE	USE VALUE
M	LAND	1	SF SQUARE FEET	X	9140-	2	N N	563000	
M	LAND	2	SF SQUARE FEET	X	9140-	2	N N	41000	

View Collection Record

Back

Fran Hamilton
Tax Assessor
Madison County

Assessment & Appraisal Link
MADISON COUNTY, AL

Current Date **10/12/2012** Tax Year 2012

OWNER INFORMATION

PARCEL	17-01-02-1-000-059.000	**PPIN** 138219	**TAX DIST** 02
NAME	CITY OF HUNTSVILLE		
ADDRESS	ATTN CAROLYN LOVE P O BOX 308 HUNTSVILLE , AL 35804		
OLD PARCEL	04-1W-02-0- - 87.		
ACCOUNT	172015		
TAXABLE VALUE	1532300	**ASSESSMENT VALUE**	306460
DEED TYPE	**BOOK**	**PAGE**	
PREVIOUS OWNER			
LAST DEED DATE	/ /0000		

DESCRIPTION

3.52 AC IN THE NE 1/4 OF SEC 2 BEING
N OF ST CLAIR ST S OF R/R & BDY ON THE
E BY THE SEC LINE
SEC 2 T4 R1W

PROPERTY INFORMATION

PROPERTY ADDRESS	ST CLAIR AVE		
NEIGHBORHOOD	COMMDWNTWN		
PROPERTY CLASS		**SUB CLASS**	
LOT BLOCK			
SECTION/TOWNSHIP/RANGE	00-00 -00		
LOT DIMENSION		**ZONING**	

PROPERTY VALUES

LAND:	1532300	**CLASS 1:**		**TOTAL ACRES:**
BUILDING:		**CLASS 2:**	1532300	**TIMBER ACRES:**
	=========	**CLASS 3:**		
TOTAL PARCEL VALUE:	1532300			

DETAIL INFORMATION

CODE	TYPE	REF	METHOD	DESCRIPTION	LAND USE	TC	HsPn	MARKET VALUE	USE VALUE
M	LAND	1	SF SQUARE FEET	X	9000-	2	N N	1000000	
M	LAND	2	SF SQUARE FEET	X	9000-	2	N N	532300	

View Collection Record

Back

REFERENCE 5

The History of Huntsville Utilities

The roots of Huntsville Utilities reach as far back as 1823, just 18 years after John Hunt, the city's namesake, settled near Big Spring.

That year, Alabama's first public water system was built with Big Spring as its source. The Huntsville Waterworks used hollowed out cedar logs for pipes and a wooden storage tank called a reservoir. As the town grew, so did its need for water. Dr. Thomas Fearn bought the waterworks from it's founder Hunter Peel in 1836, extending and improving the lines until he sold the franchise to the city of Huntsville in 1858. As the city around it grew, the municipal system continued improvements, including implementing purification practices in 1914. The waterworks was operated by the city until 1954 when a water board was appointed. The next year two large wells, known as Dallas and Lincoln, were bought by the water system. Big Spring has not been used as a source since 1957. The first treatment plant was built in 1964 and drew water from the Tennessee River. Today, Huntsville Utilities pumps 10.8 billion gallons of water providing it to over 66,000 customers.

Several years after Huntsville distributed water to its citizens, city leaders began looking for a way to provide light in the streets, homes and business of its growing community. In 1856, the city council bought $1,000 stock in a gasworks plant built by Dr. F.H. Newman. The Gas Company laid pipe and lit the square with eight gas lamps on posts. Gas lighting for residential use continued until about 1910. In 1946, the local gas company was purchased by Alabama Gas Corporation. A new plant, producing propane and air for gas, was built and additional, improved pipes were laid. The city of Huntsville bought the system in 1950, followed with a contract by Alabama-Tennessee Natural Gas Company to pipe natural gas into Huntsville. Today, Huntsville Utilities distributes 5.8 billion cubic feet of natural gas, providing it to over 35,000 customers.

Thirty years after gas lamps lit the streets of the square, Huntsville researched the use of an electric lighting system. In 1887, the Huntsville Electric Company was formed and introduced the city to electric lights that same year. By 1900, people began putting away their standby oil lamps.

Huntsville Railway, Light and Power Company bought the system and sent electricity through the city streets by 1913. Two years later Alabama Power Company purchased the system from Huntsville Railway, Light and Power Company. Electric power lines were improved and re-built, however continued to draw power from the old steam electric generating plant in Huntsville for the next four years. In 1919, Huntsville was connected to an electric transmission network. The system drew electricity generated at dams on rivers called

hydro power. The city of Huntsville bought the system, which by 1940 was serving Huntsville and Madison County, and contracted with Tennessee Valley Authority to purchase power generated from dams on the Tennessee River. The Huntsville Electric Utility Board was appointed to run the municipal system. Today, Huntsville Utilities distributes 3.9 billion kilowatt hours over 3,700 miles of wire to serve over 125,000 customers with electricity.

Between 1950 and 1970, Huntsville grew from a collection of textile villages to a metropolis that played a significant role in the American space program. Likewise, the utility infrastructure matched the growth. During the 1980's, the expansion continued, but reached out into the county. That growth trend continues today with Huntsville Utilities providing water, gas and electricity to over a quarter of a million people in Madison and Marshall Counties.

Huntsville Utilities is an equal opportunity residential utility service provider. We do not discriminate in the terms, conditions, or provision of services based on race, color, religion, sex, disability, familial status, or national origin.

Huntsville Utilities es un proveedor de servicios residenciales públicos (electricidad, gas y agua) que ofrece igualdad de oportunidades. Nosotros no discriminamos en los términos, las condiciones, o las provisiones de nuestros servicios basados en la raza, religión, color, sexo, discapacidad, estado familiar u origen nacional.

About Huntsville Utilities

Huntsville Utilities is located in Huntsville, Alabama and is owned by the City of Huntsville. Huntsville Utilities is actually three separate Systems operating under three Boards appointed by the City Council. The Gas, Water and Electric Systems share top management, customer services, billing, meter reading, accounting and purchasing to save our customers money. Each System pays its share of these expenses and has its own financial reports. Due to our common goal of outstanding customer service and cost savings, Huntsville Utilities has also worked with most of the Madison County Water Systems, the City and County Sanitation Departments and the City Water Pollution Control Department to provide our customers with a single bill each month. By sharing in this billing, we all save on postage, paper, payroll, benefits, computers, vehicles and insurance while giving the customer the convenience of one stop service and a single monthly bill.

As a "Public Utility" we answer only to the people we serve. Decisions are not influenced by the effects on our stock prices, but are based on what is best for our customers. We do not pay dividends to stockholders, instead we provide lower prices to our customers. Every person associated with Huntsville Utilities is a local resident, including our Board Members. Decisions are not made by some distant corporate board but are made here with only the best interest of your local community at heart. Our employees are your neighbors, your Sunday School teachers, your little league coaches, your community supporters and civic organization's participants. Our employees have formed a Volunteer Council to select and organize assistance to worthy causes. As a good corporate neighbor Huntsville Utilities actively participates in Gatekeepers, Project Share, Buddy Call, United Way, March of Dimes and Adopt-a-School. In 1996 Huntsville Utilities received a National Community Service Award.

As Huntsville has grown from a sleepy little cotton town to a world renown high-tech center, Huntsville Utilities has been there every step of the way. Huntsville has never had to restrict development and progress for its citizens or its industry due to a lack of adequate utility services. Operating with efficient, cost effective, business-like operations, free from political and profit motive influences, has resulted in rates that are envied throughout the United States. This encourages growth and leaves more discretionary spending dollars in the local economy.

We provide electricity that is purchased from the Tennessee Valley Authority (TVA) and distribute it throughout Madison County.

Natural Gas is purchased from a number of suppliers, with supply produced onshore and offshore. With two major pipelines transporting natural gas for distribution to Huntsville Utilities, customers are provided a safe, reliable supply of natural gas in quantities sufficient to meet their needs.

The Water comes from wells which tap underground aquifers and from the Tennessee River. This water is purified in accordance with rules and regulations of the Alabama Department of Environmental Management (ADEM) and the Environmental Protection Agency (EPA). The water quality is closely monitored by our on-site, certified laboratory. The System's water treatment plants have received the "Best Operated Surface Water Treatment Plant" Award 14 times combined. The ground water supply has received the "Best Operated Ground Water System in Alabama" 9 times since 1981. In 1992, the System received the EPA Safe Drinking Water Excellence Award, where Huntsville was selected over other large water suppliers in EPA Region IV, which includes 8 Southeastern states.

Our Mission

To provide high quality, low cost, safe, reliable electric, natural gas and water service delivered in a customer friendly manner.

Our Vision

To be the best electric, gas and water utility in the Tennessee Valley in regard to rates, customer service, reliability, and community involvement.

Huntsville Utilities is an equal opportunity residential utility service provider. We do not discriminate in the terms, conditions, or provision of services based on race, color, religion, sex, disability, familial status, or national origin.

Huntsville Utilities es un proveedor de servicios residenciales públicos (electricidad, gas y agua) que ofrece igualdad de oportunidades. Nosotros no discriminamos en los términos, las condiciones, o las provisiones de nuestros servicios basados en la raza, religión, color, sexo, discapacidad, estado familiar u origen nacional.

REFERENCE 6

Huntsville (city), Alabama

People QuickFacts	Huntsville	Alabama
Population, 2011 estimate	182,956	4,802,740
Population, 2010 (April 1) estimates base	180,120	4,779,735
Population, percent change, April 1, 2010 to July 1, 2011	1.6%	0.5%
Population, 2010	180,105	4,779,736
Persons under 5 years, percent, 2010	6.2%	6.4%
Persons under 18 years, percent, 2010	21.5%	23.7%
Persons 65 years and over, percent, 2010	14.2%	13.8%
Female persons, percent, 2010	51.4%	51.5%
White persons, percent, 2010 (a)	60.3%	68.5%
Black persons, percent, 2010 (a)	31.2%	26.2%
American Indian and Alaska Native persons, percent, 2010 (a)	0.6%	0.6%
Asian persons, percent, 2010 (a)	2.4%	1.1%
Native Hawaiian and Other Pacific Islander, percent, 2010 (a)	0.1%	0.1%
Persons reporting two or more races, percent, 2010	2.5%	1.5%
Persons of Hispanic or Latino origin, percent, 2010 (b)	5.8%	3.9%
White persons not Hispanic, percent, 2010	58.0%	67.0%
Living in same house 1 year & over, 2006-2010	79.3%	84.3%
Foreign born persons, percent, 2006-2010	6.8%	3.4%
Language other than English spoken at home, pct age 5+, 2006-2010	7.8%	4.9%
High school graduates, percent of persons age 25+, 2006-2010	86.7%	81.4%
Bachelor's degree or higher, pct of persons age 25+, 2006-2010	37.9%	21.7%
Mean travel time to work (minutes), workers age 16+, 2006-2010	18.1	23.9
Homeownership rate, 2006-2010	61.1%	71.1%
Housing units in multi-unit structures, percent, 2006-2010	30.6%	15.5%
Median value of owner-occupied housing units, 2006-2010	$146,800	$117,600
Households, 2006-2010	73,235	1,821,210
Persons per household, 2006-2010	2.31	2.53
Per capita money income in past 12 months (2010 dollars) 2006-2010	$29,255	$22,984
Median household income 2006-2010	$47,153	$42,081
Persons below poverty level, percent, 2006-2010	15.4%	17.1%

180,120 ÷ 30% = 54,036 individuals for electricity

Business QuickFacts	Huntsville	Alabama
Total number of firms, 2007	14,556	382,350
Black-owned firms, percent, 2007	13.8%	14.8%
American Indian- and Alaska Native-owned firms, percent, 2007	1.1%	0.8%
Asian-owned firms, percent, 2007	4.0%	1.8%
Native Hawaiian and Other Pacific Islander-owned firms, percent, 2007	F	0.1%
Hispanic-owned firms, percent, 2007	1.4%	1.2%
Women-owned firms, percent, 2007	29.9%	28.1%
Manufacturers shipments, 2007 ($1000)	8,209,622	112,858,843
Merchant wholesaler sales, 2007 ($1000)	2,425,180	52,252,752
Retail sales, 2007 ($1000)	3,675,778	57,344,851
Retail sales per capita, 2007	$21,473	$12,364

Accommodation and food services sales, 2007 ($1000)	471,899	6,426,342

Geography QuickFacts	Huntsville	Alabama
Land area in square miles, 2010	209.05	50,645.33
Persons per square mile, 2010	861.5	94.4
FIPS Code	37000	01
Counties		

(a) Includes persons reporting only one race.
(b) Hispanics may be of any race, so also are included in applicable race categories.

D: Suppressed to avoid disclosure of confidential information
F: Fewer than 100 firms
FN: Footnote on this item for this area in place of data
NA: Not available
S: Suppressed; does not meet publication standards
X: Not applicable
Z: Value greater than zero but less than half unit of measure shown

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, County Business Patterns, Economic Census, Survey of Business Owners, Building Permits, Consolidated Federal Funds Report, Census of Governments
Last Revised: Tuesday, 18-Sep-2012 16:42:10 EDT

le_case=&sic_code=&all_programs=YES&chem_name=&chem_search=Beginning+With&cas_num=&program_search=1&report=1&page_no=1&output_sql_switch=TRUE&database_type=CERCLIS

EPA United States Environmental Protection Agency

Envirofacts

Search Results

Consolidated facility information (from multiple EPA systems) was searched to select facilities

<< Return

EPA Facility ID: Beginning With: 110009264287

CERCLIS Links

- Overview
- Search
- Model
- Law
- CERCLIS Search User Guide
- Contact Us
- Superfund Home

Report an Error

Results are based on data extracted on DEC-13-2011

Note: Click on the underlined CORPORATE LINK value for links to that company's environmental web pages.

Click on the MAPPING INFO value to obtain mapping information for the facility.

Click on the CERCLIS_EPA_ID value to view a detailed report for the facility.

Click on the RECORD OF DECISION value for a RODS Site Report.

Click on the "View Facility Information" link to view EPA Facility information for the facility.

Click on the "Code/Descriptions" link to view OWNERSHIP codes and descriptions.

Go To Bottom Of The Page

Facility Information

CERCLIS EPA ID	Facility Information	SITE NAME	ADDRESS	COUNTY	SITE SMSA	FEDERAL FACILITY	NPL STATUS	CORPORATE LINK	MAPPING INFO	RECORD OF DECISION (ROD) INFO	EPA REGIONAL LINK	LATITUI LONGITI
AL1640090014	View Facility Information	US TVA HUNTSVILLE PRIMARY SUBSTATION	250 POLARD STREET HUNTSVILLE, AL 35801	MADISON	3440	Y	Not on the NPL	No	MAP	No	No	

http://oaspub.epa.gov/enviro/cerclis_web.report?pgm_sys_id=AL1640090014

Last updated on Tuesday, October 25, 2011

Superfund (CERCLIS)

You are here: EPA Home Envirofacts CERCLIS Query Results

Query Results

Report an Error

Site ID: Equal To: AL1640090014

Results are based on data extracted on OCT-18-2011

Note: Click on the underlined CORPORATE LINK value for links to that company's environmental web pages.
Click on the underlined MAPPING INFO value to obtain mapping information for the facility.
Click on the underlined RECORD OF DECISION value for a RODS Site Report.
Click on the underlined "View Facility Information" link to view EPA Facility information for the facility.

Go To Bottom Of The Page

CERCLIS EPA ID:	AL1640090014	**SITE NAME:**	US TVA HUNTSVILLE PRIMARY SUBSTATION
STREET ADDRESS:	250 POLARD STREET	**FACILITY INFORMATION**	View facility information
CITY NAME:	HUNTSVILLE		
STATE ABBR:	AL	**FEDERAL FACILITY:**	Y
ZIP CODE:	358015010	**NPL STATUS:**	Not on the NPL
COUNTY NAME:	MADISON		
CORPORATE LINK:	No	**RECORD OF DECISION (ROD) INFO:**	No
LATITUDE:		**EPA REGIONAL LINK:**	No
LONGITUDE:		**MAPPING INFO:**	MAP
SITE SMSA:	3440		

Enforcement and Cleanup Actions

Action	Action ID	Actual Start Date	Actual End Date	Responsibility	Planned Outcome	Urgency
DISCOVERY	001		12/12/1992	Federal Enforcement		

Site Description

There were no Site Descriptions reported for this site.

Below is additional information for CERCLIS sites:

This information resource is not maintained, managed, or owned by the Environmental Protection Agency (EPA) or the Envirofacts Support Team. Neither the EPA nor the Envirofacts Support Team is

responsible for their content or site operation. The Envirofacts Warehouse provides this reference only as a convenience to our Internet users.

- National Library of Medicine (NLM) EXIT EPA TOXMAP

Go To Top Of The Page

Total Number of Facilities Displayed: 1

REFERENCE 8

PCB SPILL CLEANUP CHECKLIST AND REPORT

K02 900627-301

CHECKLIST (Also fill out the FIELD SPILL section of this form)

ISOLATION

Is fluid still being released to environment?
☐ YES - take appropriate measures to eliminate any further leakage.
☒ NO

Can spilled fluid enter a waterway, crop of grazing land, sanitary sewer or drain?
☐ YES - stop flow with use of an absorbent or boom, immediately report according to T&CS PCB spill cleanup procedure
☒ NO

BARRICADE

Is spill area open to public access?
☐ YES - barricade the spill area plus a 3 foot buffer zone to eliminate any unauthorized access. Initiate cleanup.
☒ NO

Is rain likely before completion of spill cleanup?
☐ YES - cover spill area with plastic
☒ NO

NOTIFICATION

Immediately report spill according to T&CS Spill Clean Up Procedure
Date & time T&CS-Transmission Support Department notified 6/13/90 @1430 hr.

Is this a significant PCB spill? (Greater than 1 lb PCB)
☒ YES
☐ NO

CLEANUP GUIDELINES

a. Obtain all cleanup equipment.
b. Put on appropriate protective clothing (e.g., gloves, shoe covers, coveralls).
c. Remove all visible traces of contaminated soil to be minimum depth of one foot plus a one foot buffer zone around the spill area.
d. Place soil and any ruptured or bulged equipment in sealed drums.
e. Wipe down any contaminated solid surfaces (e.g., poles, equipment, concrete) three times, with solvent.
f. Wash any contaminated cleanup equipment (e.g., shovels) three times with solvent.
g. Place all contaminated rags and clothing in disposal container.
h. Mark all disposal containers with dated PCB label.
i. Transport all PCB disposal items to temporary storage area.
j. Complete all reporting requirements.
k. Transport to TVA Hazardous Waste Storage Facility at Power Stores Muscle Shoals.

FIELD SPILL REPORT

Notified (Case No. 26741)
National Response Group 6/13/90 @4:30 P.M. E

TYPE OF EQUIPMENT
☒ Capacitor
☐ Power Transformer
☐ Distribution Transformer
☐ Others (identify) _____

LOCATION:
☐ Non-Substation
☒ Substation
☐ Distance to residential/commercial area 200 ft.
☐ Distance to nearest stream garden or pasture 400 ft.

TYPE OF FLUID SPILLED:
☒ PCB
☐ Mineral Oil
☐ Other: _____

DATE OF SPILL	TIME OF SPILL (HOUR)	CHECK THIS IF ESTIMATED
6/13/90	1252 hr.	

DATE REPORTED TO EPA	TIME REPORTED TO EPA (HOUR)
6/13/90	(left message) 4:40 p.m. est

Final Rpt to EPA: 1020 hr 6/14/90

DATE OF CLEANUP (start)	TIME OF CLEANUP (HOUR) (start)
6/13/90	1430 hour

DATE OF CLEANUP (finish)	TIME OF CLEANUP (HOUR) (finish)
6/18/90	0700 hour

PCB concentration (if known) > 500 ppm. Screening Test Kit results:
☒ ◄ 50 ppm *
☐ 50-500 ppm
☐ ► 500 ppm *after initial cleanup
(Attach lab results)

Approximate volume of PCB fluid spilled: < 1 gallons. Pounds of PCB 10

Has fluid entered a waterway, sanitary sewer or drain? ☐ YES ☒ NO

Has fluid spilled on any public or private property? ☐ YES ☒ NO (If yes, describe property below)

*On capacitors use 25% of nameplate fluid. Use 12.5 pounds per gallon of PCB's.

SPILL LOCATION:
161-kV Cap Bank
Substation
Huntsville Primary
Huntsville, AL
CITY STATE

Approximate depth and amount of soil removed: Depth 12 inches Amount 16 cubic feet

Has fluid spilled on any man-made hard surfaces? ☒ YES ☐ NO (If yes, describe surface cleanup below)

Wire brushed hard surfaces, cleaned with acetone.

Was EPA notified of spill? ☒ YES ☐ NO Name of EPA CONTACT EPA Region 4

Number of drums for disposal 10 Was fire associated with spill ☐ YES ☒ NO

Draw diagram of spill site in relationship to fence, garden, pasture, water, sewer, and/or residential/commercial area (use second sheet, if necessary). Identify equipment, describe cleanup area, unusual circumstances, etc. Include dimensions and sample point locations.

Diagram and report attached.

POST CLEANUP SAMPLING RESULTS (attach lab test reports)

No. of Soil Samples taken: 14
Soil Sample Results
Reports of results are attached

No. of Wipe Samples taken: 3
Wipe Sample Results:
Reports of results are attached

GENERATOR'S CERTIFICATION: I HEREBY DECLARE THAT ALL EPA SPILL CLEANUP REQUIREMENTS HAVE BEEN MET AT THE SPILL SITE REPORTED HEREIN AND THAT THE INFORMATION CONTAINED IN THIS SPILL RECORD IS TRUE TO THE BEST OF MY KNOWLEDGE.

PRINTED/TYPED NAME & POSITION OF TITLE	SIGNATURE	DATE: MONTH/DAY/YEAR
On-site coordinator Kenneth E. Plunkett, Elect. Fmn	Kenneth E. Plunkett	06/27/90
Printed/Typed Name-Region Manager Vernon McDonald, Regional Manager	Vernon McDonald	6/27/90

Huntsville 161-kV Substation
Bank 862
PCB Spill
June 13, 1990

On June 13, 1990 at approximately 1330 hour the Wilson Dispatcher was notified of spill occurring on Huntsville 161-kV Substation capacitor Bank 862.

Capacitor Bank 862 was being switched into service because of need to raise voltage due to load increase. A bird in the cap bus caused an arc between the capacitors, causing a hole in the capacitors, resulting in a spill of PCB oil.

At 1430 hours T&CS Division, Doug Gallant was notified of spill. EPA was notified at approx. 1630 hours.

Approximately 10 pounds of PCB, <1 gallon, was spilled from the capacitor Bank 862, Serial No.'s C121064, C119321, C121062, 50-kVAR. 7200 Volt, Line Material, Cat. #CP11AH

PCB spill at Huntsville primary was inside a fenced capacitor area with a six-inch limestone gravel ground cover. Total area removed was approximately 4' x 4' x 3'.

At 1430 cleanup began of contaminated area, screening test taken after initial cleanup, soil samples and wipe tests were taken and sent to LAB for processing, same day. Results were reported on 6/15, additional cleanup was done along with samples and wipe tests taken, carried to lab on 6/16/90 with results given on 6/17. Additional cleanup was completed, samples taken and carried to LAB on 6/18, results given on 6/19.

Notified Lew Sharpe on 6/21/90, that results were within proper guidelines for cleanup, new dirt and gravel being used to cover area.

Copies of the results are attached including diagrams of area of spill.

Attachment

Kenneth E. Plunkett

KEP:MR

Lab Sample Number :90/07490 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #5
Sample comments :CAP BANK862 HUNTSVILLE
Sample type/matrix :SOIL
Sample collection date :900618
Sample login date :900619 Sample received by lab :900618
Sample account number :65F2-768000-455,5

Hit. IDC	Analysis Performed	result	units
39511	PCB-1260	< 100	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	< 100	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Lab Sample Number :90/07489 Project Leader :Charles F. Petty

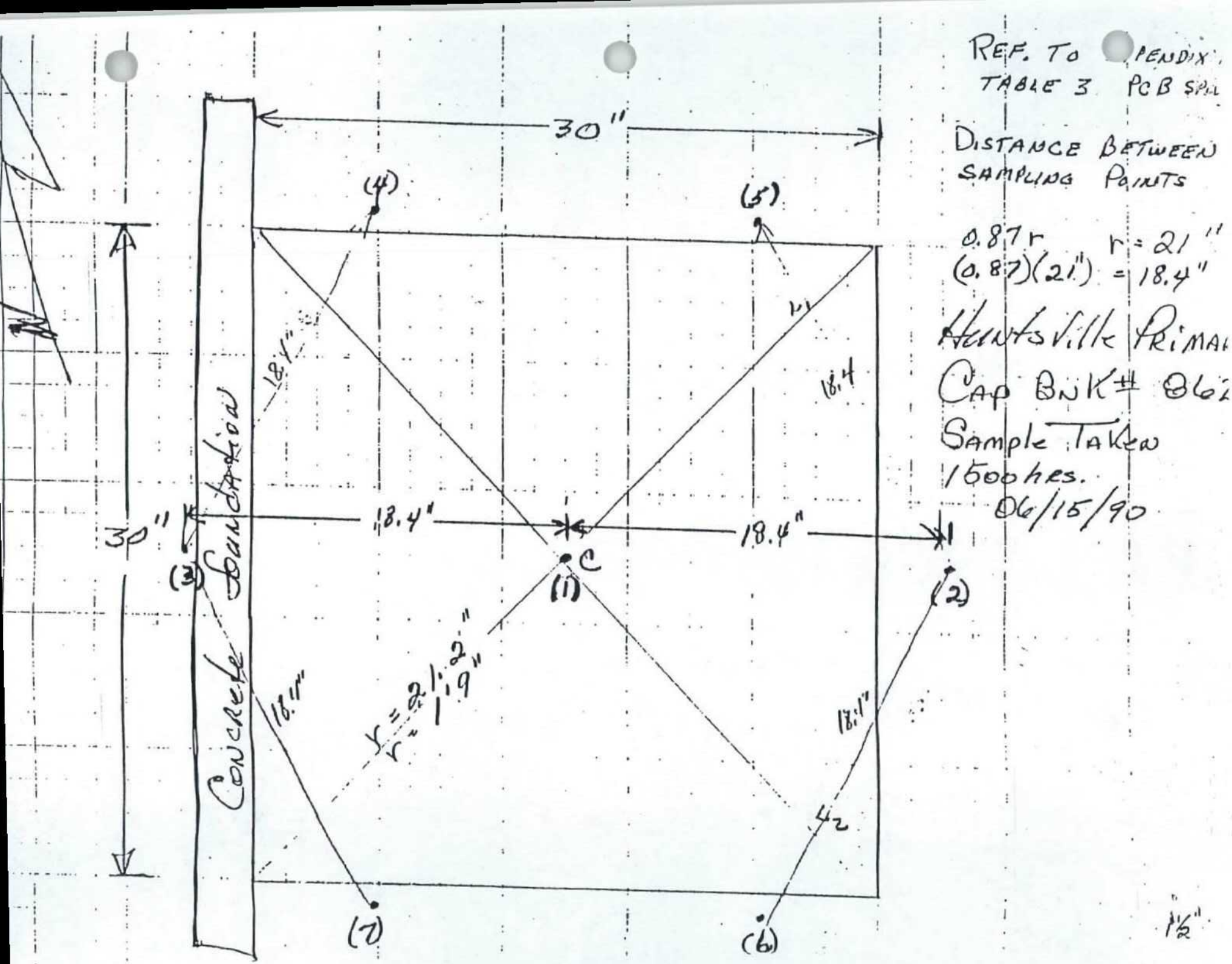
Sample ID Information :SAMPLE #2 CONCRETE
Sample comments :CAP BANK862 HUNTSVILLE
Sample type/matrix :WIPE
Sample collection date :900618
Sample login date :900619 Sample received by lab :900618
Sample account number :65F2-768000-455,5

Hit. IDC	Analysis Performed	result	units
PCBWPTST	Total PCB Wipe Test	< 2	ug/sample

Lab Sample Number :90/07488 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #1 STEEL
Sample comments :CAP BANK862 HUNTSVILLE
Sample type/matrix :WIPE
Sample collection date :900618
Sample login date :900619 Sample received by lab :900618
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
PCBWPTST	Total PCB Wipe Test	< 2	ug/sample



REF. TO APPENDIX, TABLE 3 PCB SPA

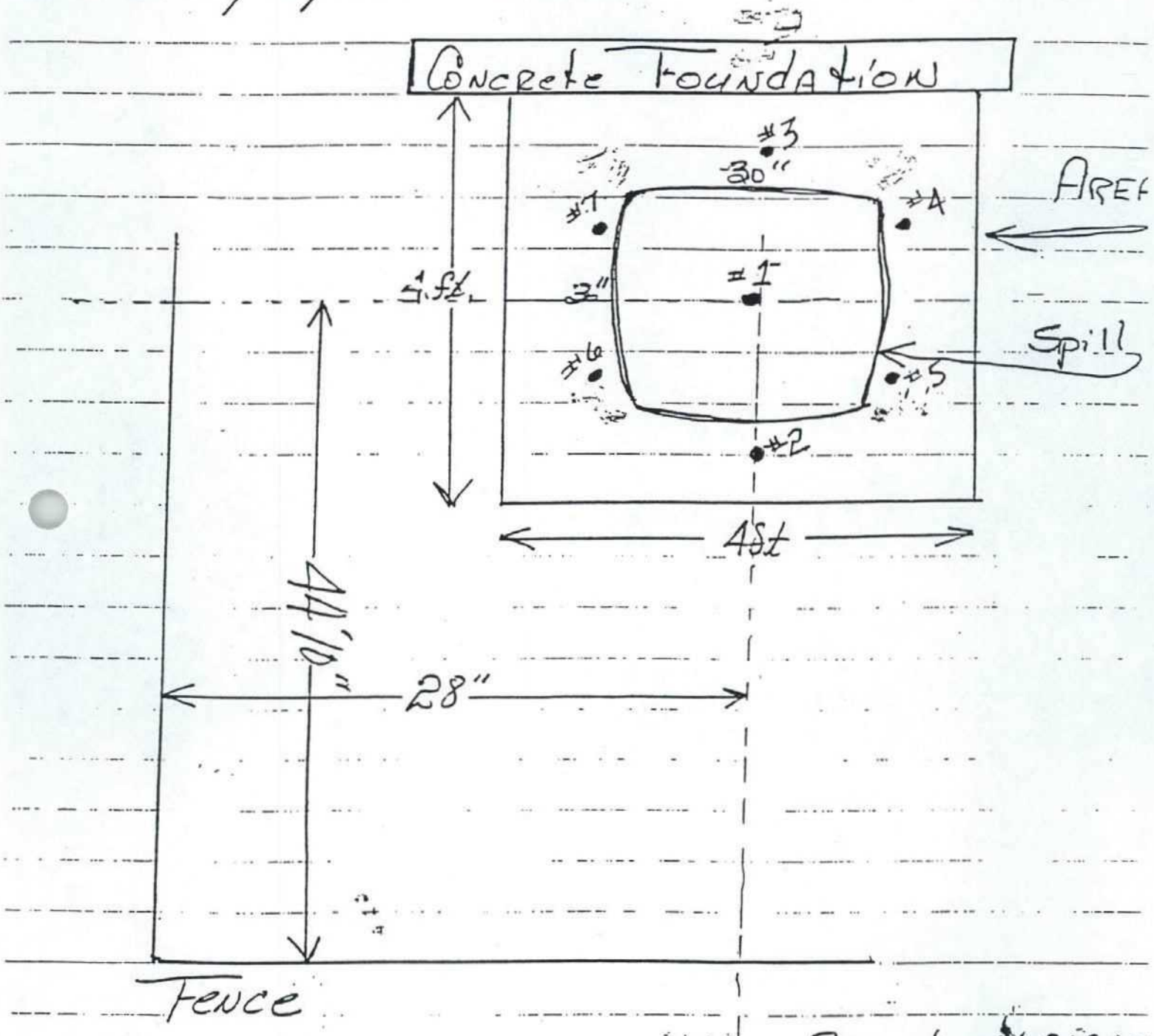
DISTANCE BETWEEN SAMPLING POINTS

0.87r r = 21"
(0.87)(21") = 18.4"

Huntsville PRIMA
CAP BNK # 86
Sample Taken
1500 hrs.
06/15/90

1½"

PCB Spill
Huntsville Tri. CAP BNK.
06/13/90 1400 hrs.



Samples 1, 2, 3, 4, 5
ARE Soil Sampl
~~Sample # 6 is~~
Concrete Foundation
~~Sample # 7 is~~ Oil

Sample Number :90/07481 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #1 CAPBANK862
Sample comments :HUNTSVILLE
Sample type/matrix :SOIL
Sample collection date :900615
Sample login date :900619 Sample received by lab :900616
Sample account number :65F2-768000-455.5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	130	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	4100	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Sample Number :90/07482 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #2 CAPBANK862
Sample comments :HUNTSVILLE
Sample type/matrix :SOIL
Sample collection date :900615
Sample login date :900619 Sample received by lab :900616
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	160	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	3600	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Sample Number :90/07483 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #3 CAPBANK862
Sample comments :HUNTSVILLE
Sample type/matrix :SOIL
Sample collection date :900615
Sample login date :900619 Sample received by lab :900616
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	< 100	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	1100	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Sample Number :90/07484 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #4 CAPBANK862
Sample comments :HUNTSVILLE
Sample type/matrix :SOIL
Sample collection date :900615
Sample login date :900619 Sample received by lab :900616
Sample account number :65F2-768000-455.5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	290	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	4000	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Sample Number :90/07485 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #5 CAPBANK862
Sample comments :HUNTSVILLE
Sample type/matrix :SOIL
Sample collection date :900615
Sample login date :900619 Sample received by lab :900616
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	9400	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	480000	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Lab Sample Number :90/07486 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #6 CAPBANK862
Sample comments :HUNTSVILLE
Sample type/matrix :SOIL
Sample collection date :900615
Sample login date :900619 Sample received by lab :900616
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	110	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	3500	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Sample Number :90/07487 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #7 CAPBANK862
Sample comments :HUNTSVILLE
Sample type/matrix :SOIL
Sample collection date :900615
Sample login date :900619 Sample received by lab :900616
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	< 100	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	< 100	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

TENNESSEE VALLEY AUTHORITY
Resource Development Group
River Basin Operations
Water Resources
Department of Water Quality
Environmental Chemistry
150 401 Chestnut Street
Chattanooga, Tennessee 37402-2801

H. H. WILLIAMS
108 WOODSUN ST
HUNTSVILLE, AL

DearH. H. WILLIAMS :

Enclosed is a copy of the analytical results for your sample(s) received by our laboratory.

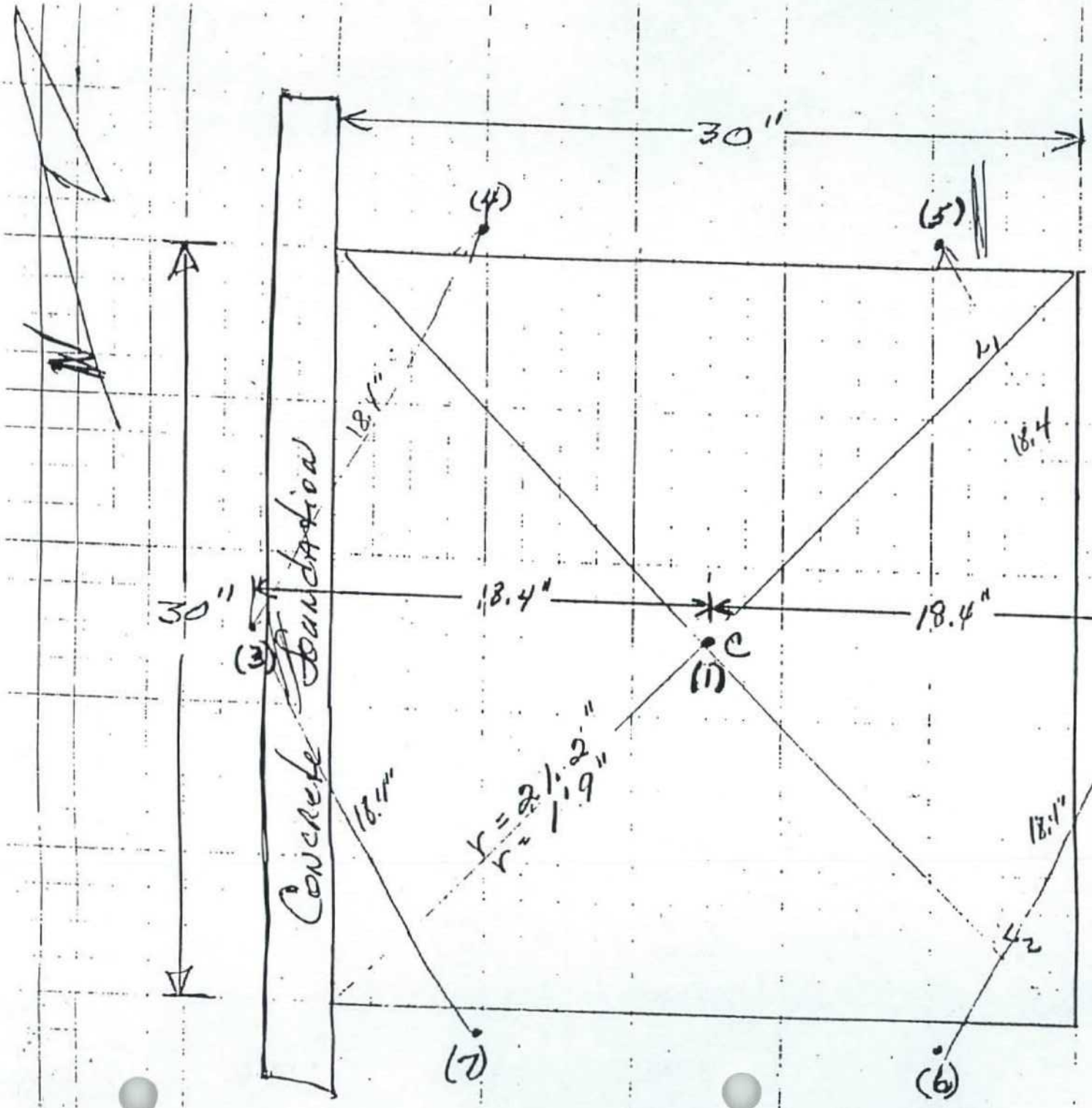
If you have any questions, please contact me at (615) 751-3135 and refer to the Lab Sample Number.

Sincerely,

TENNESSEE VALLEY AUTHORITY

Charles F. Petty

Charles F. Petty , Analytical Chemist
Environmental Chemistry



REF. TO APPENDIX
TABLE 3 PCB SPIL

DISTANCE BETWEEN
SAMPLING POINTS

0.87r r = 21"
(0.87)(21") = 18.4"

Huntsville PRIMA
CAP BNK # 062
SAMPLE TAKEN
1500 hrs.
06/15/90

1½"
2"

Lab Sample Number :90/07282 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #1
Sample comments :HUNTSVILLE 161KV
Sample type/matrix :SOIL
Sample collection date :900613
Sample login date :900614 Sample received by lab :900614
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	< 100	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	1500	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Lab Sample Number :90/07283 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #2
Sample comments :HUNTSVILLE 161KV
Sample type/matrix :SOIL
Sample collection date :900613
Sample login date :900614 Sample received by lab :900614
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	120000	ug/Kg
39507	PCB-1254	200000	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	< 100	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Lab Sample Number :90/07284 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #3
Sample comments :HUNTSVILLE 161KV
Sample type/matrix :SOIL
Sample collection date :900613
Sample login date :900614 Sample received by lab :900614
Sample account number :65F2-768000-455.5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	< 100	ug/Kg
39507	PCB-1254	< 100	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	4500	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Lab Sample Number :90/07285 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #4
Sample comments :HUNTSVILLE 161KV
Sample type/matrix :SOIL
Sample collection date :900613
Sample login date :900614 Sample received by lab :900614
Sample account number :65F2-768000-455,5

Hit. IDC	Analysis Performed	result	units
39511	PCB-1260	1200000	ug/Kg
39507	PCB-1254	620000	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	2200000	ug/Kg
39495	PCB-1232	< 100	ug/kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/kg

Project Leader :Charles F. Petty

ample type/matrix :Soil
ample collection date :900o19
ample login date :900o14 Sample received by
ample account number :65F2-768000-455.5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	2100	ug/Kg
39507	PCB-1254	5400	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	5400	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Lab Sample Number :90/07287 Project Leader :Charles F. Petty

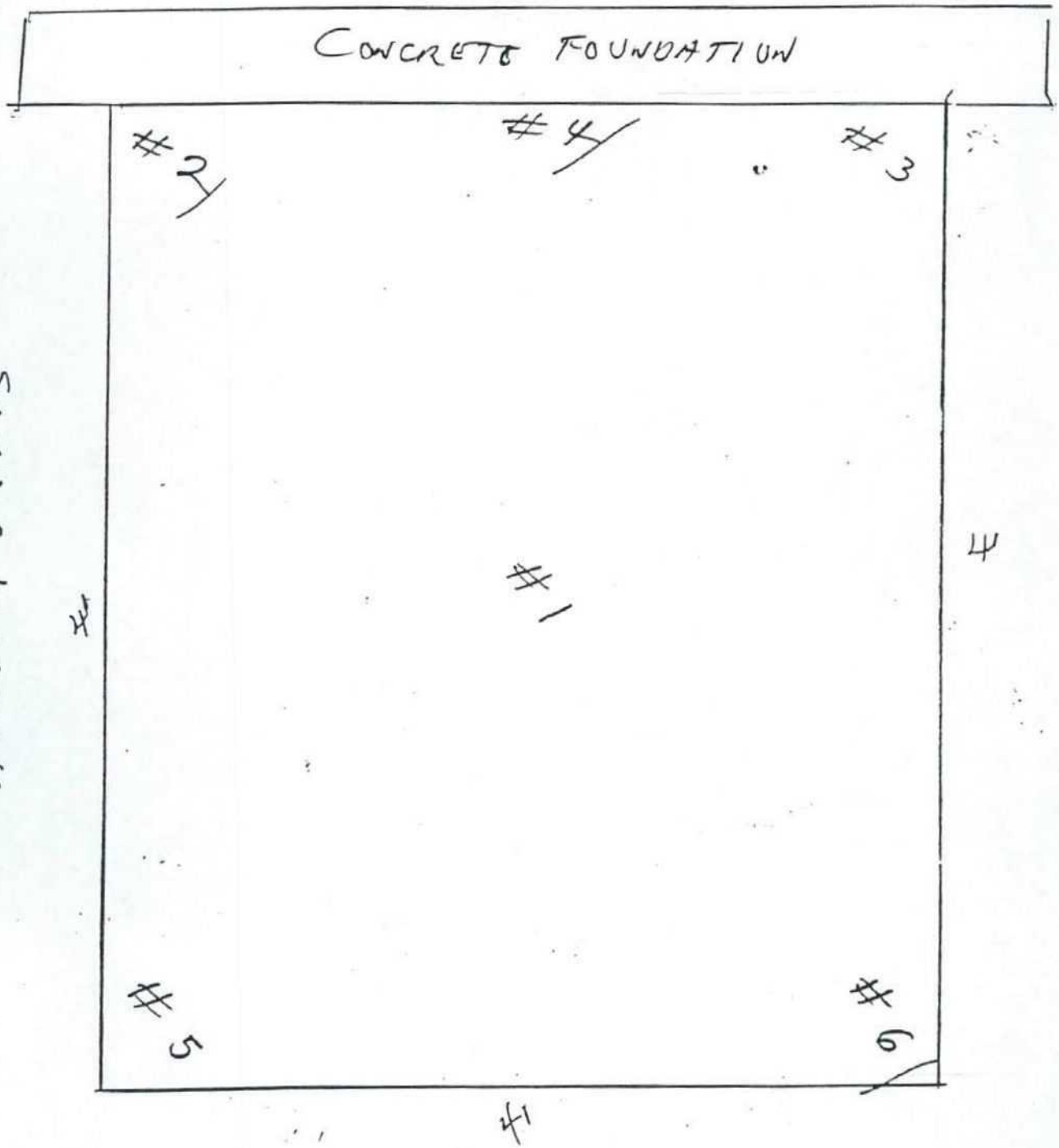
Sample ID Information :SAMPLE #6
Sample comments :HUNTSVILLE 161KV
Sample type/matrix :SOIL
Sample collection date :900613
Sample login date :900614 Sample received by lab :900614
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
39511	PCB-1260	17000	ug/Kg
39507	PCB-1254	34000	ug/Kg
39503	PCB-1248	< 100	ug/Kg
39499	PCB-1242	250000	ug/Kg
39495	PCB-1232	< 100	ug/Kg
39491	PCB-1221	< 100	ug/Kg
39514	PCB-1016	< 100	ug/Kg

Lab Sample Number :90/07288 Project Leader :Charles F. Petty

Sample ID Information :SAMPLE #7
Sample comments :CAP.BANK HUNTSVILLE 161KV
Sample type/matrix :WIPE
Sample collection date :900613
Sample login date :900614 Sample received by lab :900614
Sample account number :65F2-768000-455,5

Alt. IDC	Analysis Performed	result	units
PCBWPTST	Total PCB Wipe Test	250	ug/sample


CONCRETE FOUNDATION
#2
#4
#3
#1
#5
#6
4
4
4
SAMPLE LOCATIONS

TAW JWC

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. 4 0 C F R P A R T 7 6 1 | Manifest Document No. H D 1 1

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Tennessee Valley Authority
Southern Region/Huntsville District Office,
Huntsville, AL 35804-0328

A. State Manifest Document Number TVA-000372

B. State Generator's ID

4. Generator's Phone (205) 534-8434

5. Transporter 1 Company Name
TVA POWER SERVICE SHOPS

6. US EPA ID Number A L 2 6 4 0 0 0 6 7 4 6

C. State Transporter's ID

D. Transporter's Phone (205) 386-2901

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
TVA MUSCLE SHOALS POWER SERVICE CENTER
HAZARDOUS WASTE STORAGE FACILITY
AL HWY. 133 AT MUSCLE SHOALS, AL
MUSCLE SHOALS, AL 35660

10. US EPA ID Number A L 2 6 4 0 0 9 0 0 0 5

G. State Facility's ID

H. Facility's Phone (205) 386-2135

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Substance, solid/liquid, NOS, ORM-E NA 9188 (PCB) RQ-1	RQ	1	DM	294	K	
b. Hazardous Substance, solid, NOS, ORM-E NA 9188 (PCB) RQ-1	RQ	9	DM	1791	K	
c. ~~Hazardous Substance, solid/liquid, NOS, ORM-E NA 9188 (PCB) RQ-1~~	~~RQ~~	~~1~~	~~T~~	~~5621~~	~~K~~	
d.						

J. Additional Descriptions for Materials Listed Above
lla. 3 capacitors, PCB, Line Material, 50-kVAR, Bank 862, Huntsville 161-kV Sub., SN Z117493, C119321, C121062, Removed from service on 6/13/90. 11b. Rags, etc. used in cleanup and soil, PCB, Bank 862 at Huntsville 161-kV Sub., Removed 6/15/90

K. Handling Codes for Wastes Listed Above
~~11c. 13 capacitors, Huntsville Storeroom, Removed from service on 7/10/90. See attached list for serial numbers.~~

15. Special Handling Instructions and Additional Information
HAULED ON TVA TRUCK, ~~PLACARD~~ PLACARDS ON TRUCK. EMERGENCY PROCEDURE INFORMATION GIVEN TO DRIVER ON TRUCK. DIKE AND CONTAIN IN CASE OF SPILL OR LEAKAGE.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
Kenneth E. Plunkett				

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Wayne Wallace CHARLES Now				

Style F15REV-6 LABELMASTER, Div. of AMERICAN LABELMARK CO., CHICAGO, IL 60646

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

REFERENCE 9

Huntsville Utilities: Apportionment Table for Surface Water and Ground Water Sources (Mr. Jim Reynolds - (256) 650-6374 - Huntsville Utilities, blended system)			
Well/Intake	**Prod. Gal/day**	**Total prod. Gal/Day**	**Population**
1) Tennessee River	45,000,000	126,000,000	219,168
2) Brahms Spring	Inactive/closed	0	0
(3) Williams	9,000,000	126,000,000	219,168
(4) Dallas	9,000,000	126,000,000	219,168
(5) Lincoln	9,000,000	126,000,000	219,168
(6) Lowe Mill	Inactive/closed	0	0
(7) Tennessee River	45,000,000	126,000,000	219,168
(8) Hampton Cove	9,000,000	126,000,000	219,168
		Total Population	**219,168**

Alabama Department of Environmental Management	Water Division	Drinking Water Branch
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Water System Facilities	Violations Enforcement Actions	TCR Sample Results	TTHM HAA5 Summaries
Sample Points	Assistance Actions	Recent Positive TCR Results	PBCU Summaries
Sample Schedules / FANLs / Plans	Compliance Schedules	Other Chemical Results	Chlorine Summaries
Site Visits Milestones	TOC/Alkalinity Results	Chemical Results by: Name Code	Turbidity Summaries
Operators All POC	LRAA (TTHM/HAA5)	Recent Non-TCR Sample Results	TCR Sample Summaries

Water System Detail Information

Water System No.:	AL0000882	Federal Type:	C
Water System Name:	HUNTSVILLE UTILITIES	Federal Source:	SW
Principal County Served:	MADISON	System Status:	A
Principal City Served:	HUNTSVILLE	Activity Date:	02-24-2005

10/18/2012 11:20 pm Jim Reynolds- 80% SW & 20% GW - blended system
Lowe & Braham Sys are permanently closed

Water System Contacts

Type	Contact	Communication	
		Phone Type	Value
AC - Administrative Contact	OWENS, TONY P O BOX 2048 HUNTSVILLE, AL 35804	BUS - Business	256-881-6281
		EMERG - Emergency	256-882-8110

List of Operators Complete Point of Contact List Jim Reynolds 256-650-6374

Sources of Water

Name	Type	Activity	Availability
TENNESSEE RIVER (SO. PKWY.) IN001	IN	A	P
TENNESSEE RIVER (S.W.) IN007	IN	A	P
LINCOLN WELL WL005	WL	A	P
HAMPTON COVE WELL WL008	WL	A	P
DALLAS WELL WL004	WL	A	P
WILLIAMS WELL WL003	WL	A	P
LOWE MILL WELL WL006	WL	~~A~~ I	P-closed
BRAHAM SPRINGS SP002	SP	I	P-closed

4 wells & 2 SW Intakes

Source Water Percentages

Surface Water	60	Surface Water Purchased	0

Ground Water	40	Ground Water Purchased	0
Ground Water UDI	0	Ground Water UDI Purchased	0

Water Purchases

System No.	System Name	Facility ID	Facility Name	Water Finish
No Water Purchases				

Buyers of Water

Water System No.	Name
AL0000904	GURLEY WATER SYSTEM
AL0000888	MADISON COUNTY WATER DEPARTMENT
AL0000885	MADISON WATER WORKS & SEWER
AL0000893	NEW HOPE WATER SYSTEM
AL0000897	OWENS CROSSROADS WATER AUTHORITY
AL0000905	TRIANA WATER WORKS
AL0000899	US ARMY AVIATION & MISSILE COMMAND

EPIPEP

Annual Operating Period(s)

Effective Begin Date	Effective End Date	Start Month/Day	End Month/Day	Type	Population
01-01-2004	No End Date	1/1	12/31	R	219168

Service Connections

Type	Count	Meter Type	Meter Size
RS	73056	ME	0

Service Area

Code	Name
R	RESIDENTIAL AREA

Regulating Agencies

Name	Alias/Inspector
ALABAMA DEPT. OF ENVIRONMENTAL MGT.	

Water System Historical Names
Historical Name(s)

System Certification Requirements		
Certification Name	Code	Begin Date

WS Flow Rates		
Type	Quantity	UOM
AVPD - Average Daily Production	39892000	GPD
TLDS - Total Design Capacity	59951000	GPD

WS Measures		
Type	Quantity	UOM

WS Indicators		
Type	Value	Date
SSWP - State Source Water Program	NO	03-12-2009

Alabama Department of Environmental Management	Water Division	Drinking Water Branch
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Water System Facilities	Violations Enforcement Actions	TCR Sample Results	TTHM HAA5 Summaries
Sample Points	Assistance Actions	Recent Positive TCR Results	PBCU Summaries
Sample Schedules / FANLs / Plans	Compliance Schedules	Other Chemical Results	Chlorine Summaries
Site Visits Milestones	TOC/Alkalinity Results	Chemical Results by: Name Code	Turbidity Summaries
Operators All POC	LRAA (TTHM/HAA5)	Recent Non-TCR Sample Results	TCR Sample Summaries

Water System Detail Information

Water System No.:	AL0000888	Federal Type:	C
Water System Name:	MADISON COUNTY WATER DEPARTMENT	Federal Source:	SWP
Principal County Served:	MADISON	System Status:	A
Principal City Served:	HUNTSVILLE	Activity Date:	01-01-1960

Water System Contacts

Type	Contact	Communication	
AC - Administrative Contact	MUCKE, FREDERICK 266 - B SHIELDS ROAD HUNTSVILLE, AL 35811	**Phone Type**	**Value**
		BUS - Business	256-746-2888
		FAX - Facsimile	256-746-2889
		EMERG - Emergency	256-532-1660
DO - Designated Operator	CLUTTS, DARRYL 2062 STATE LINE ROAD ARDMORE, AL 35739	**Phone Type**	**Value**
		BUS - Business	256-532-1652

List of Operators Complete Point of Contact List

Sources of Water

Name	Type	Activity	Availability
HUNTSVILLE	CC	A	P
HARVEST-MONROVIA WATER AUTHORITY	CC	A	P
NEW HOPE	CC	A	P
LIMESTONE COUNTY	CC	A	P
CRESS WELL, 5000 GPM	WL	A	P
HAZEL GREEN WELL, 1400 GPM	WL	A	P
BO HOWARD WELL - NW AREA, 2500 GPM	WL	A	P
OWENS CROSSROADS	CC	A	E
ESSLINGER WELL (SHUTDOWN)	WL	I	O

Source Water Percentages			
Surface Water	0	Surface Water Purchased	7
Ground Water	93	Ground Water Purchased	0
Ground Water UDI	0	Ground Water UDI Purchased	0

Water Purchases				
System No.	System Name	Facility ID	Facility Name	Water Finish
AL0000878	HARVEST-MONROVIA WATER SYSTEM	DS200	DISTRIBUTION SYSTEM	Treated and Filtered
AL0000882	HUNTSVILLE UTILITIES	DS200	DISTRIBUTION SYSTEM	Treated and Filtered
AL0000833	LIMESTONE COUNTY WATER SYSTEM	DS200	DISTRIBUTION SYSTEM	Treated and Filtered
AL0000893	NEW HOPE WATER SYSTEM	DS200	DISTRIBUTION SYSTEM	Not Treated
AL0000897	OWENS CROSSROADS WATER AUTHORITY	DS200	DISTRIBUTION SYSTEM	Treated, not Filtered

Buyers of Water	
Water System No.	Name
AL0000904	GURLEY WATER SYSTEM
AL0000878	HARVEST-MONROVIA WATER SYSTEM
AL0001748	JACKSON COUNTY WATER AUTHORITY
AL0000893	NEW HOPE WATER SYSTEM
AL0000897	OWENS CROSSROADS WATER AUTHORITY

Annual Operating Period(s)					
Effective Begin Date	Effective End Date	Start Month/Day	End Month/Day	Type	Population
07-03-2012	No End Date	1/1	12/31	R	84426

Service Connections			
Type	Count	Meter Type	Meter Size
RS	28142	ME	0

Service Area	
Code	Name

R	RESIDENTIAL AREA

Regulating Agencies	
Name	Alias/Inspector
ALABAMA DEPT. OF ENVIRONMENTAL MGT.	

Water System Historical Names
Historical Name(s)

System Certification Requirements		
Certification Name	Code	Begin Date

WS Flow Rates		
Type	Quantity	UOM
AVPD - Average Daily Production	8100000	GPD
TLDS - Total Design Capacity	12816000	GPD
EMRG - Total Emergency Capacity	14097600	GPD
MDLP - MAXIMUM DAILY PRODUCTION	10100000	GPD

WS Measures		
Type	Quantity	UOM
PIPE - Pipe	911	MIL
ACP - Asbestos Cement Pipe	54	MIL

WS Indicators		
Type	Value	Date
SSWP - State Source Water Program	NO	03-12-2009
DBP2 - STAGE 2 DBPR SCHEDULE CATEGORY	1	01-01-2012

Alabama Department of Environmental Management	Water Division	Drinking Water Branch
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Water System Facilities	Violations Enforcement Actions	TCR Sample Results	TTHM HAA5 Summaries
Sample Points	Assistance Actions	Recent Positive TCR Results	PBCU Summaries
Sample Schedules / FANLs / Plans	Compliance Schedules	Other Chemical Results	Chlorine Summaries
Site Visits Milestones	TOC/Alkalinity Results	Chemical Results by: Name Code	Turbidity Summaries
Operators All POC	LRAA (TTHM/HAA5)	Recent Non-TCR Sample Results	TCR Sample Summaries

Water System Detail Information

Water System No.:	AL0000893	Federal Type:	C
Water System Name:	NEW HOPE WATER SYSTEM	Federal Source:	SWP
Principal County Served:	MADISON	System Status:	A
Principal City Served:	NEW HOPE	Activity Date:	01-01-1960

Water System Contacts

Type	Contact	Communication	
AC - Administrative Contact	LEMLEY, IVAN PO Box 419 NEW HOPE, AL 35760	**Phone Type**	**Value**
		BUS - Business	256-723-2616
DO - Designated Operator	CRABTREE, JEREMY P O BOX 419 NEW HOPE, AL 35760	**Electronic Type**	**Value**
		EMAIL - Email	cityhall@nehp.net
		Phone Type	**Value**
		BUS - Business	256-723-2616
		MOB - Mobile	256-426-4352

List of Operators Complete Point of Contact List

Sources of Water

Name	Type	Activity	Availability
HUNTSVILLE UTILITIES	CC	A	P
OWENS CROSSROADS	CC	A	E
WELL 3 (INACTIVE)	WL	I	O
WELL 2 (INACTIVE)	WL	I	O
MADISON COUNTY	CC	I	E

Source Water Percentages

Surface Water	0	Surface Water Purchased	100
Ground Water	0	Ground Water Purchased	0
Ground Water UDI	0	Ground Water UDI Purchased	0

Water Purchases

System No.	System Name	Facility ID	Facility Name	Water Finish
AL0000882	HUNTSVILLE UTILITIES	DS200	DISTRIBUTION SYSTEM	Treated and Filtered
AL0000888	MADISON COUNTY WATER DEPARTMENT	DS200	DISTRIBUTION SYSTEM	Unknown Status
AL0000897	OWENS CROSSROADS WATER AUTHORITY	DS200	DISTRIBUTION SYSTEM	Treated, not Filtered

Buyers of Water

Water System No.	Name
AL0000888	MADISON COUNTY WATER DEPARTMENT

Annual Operating Period(s)

Effective Begin Date	Effective End Date	Start Month/Day	End Month/Day	Type	Population
05-16-2012	No End Date	1/1	12/31	R	5421

Service Connections

Type	Count	Meter Type	Meter Size
RS	1807	ME	0

Service Area

Code	Name
R	RESIDENTIAL AREA

Regulating Agencies

Name	Alias/Inspector
ALABAMA DEPT. OF ENVIRONMENTAL MGT.	

Water System Historical Names

Historical Name(s)

System Certification Requirements

Certification Name	Code	Begin Date

WS Flow Rates		
Type	**Quantity**	**UOM**
AVPD - Average Daily Production	438000	GPD
MDLP - MAXIMUM DAILY PRODUCTION	537000	GPD

WS Measures		
Type	**Quantity**	**UOM**

WS Indicators		
Type	**Value**	**Date**
SSWP - State Source Water Program	NO	03-12-2009
DBP2 - STAGE 2 DBPR SCHEDULE CATEGORY	1	01-01-2012

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Water System Facilities	Violations Enforcement Actions	TCR Sample Results	TTHM HAA5 Summaries
Sample Points	Assistance Actions	Recent Positive TCR Results	PBCU Summaries
Sample Schedules / FANLs / Plans	Compliance Schedules	Other Chemical Results	Chlorine Summaries
Site Visits Milestones	TOC/Alkalinity Results	Chemical Results by: Name Code	Turbidity Summaries
Operators All POC	LRAA (TTHM/HAA5)	Recent Non-TCR Sample Results	TCR Sample Summaries

Water System Detail Information

Water System No.:	AL0000905	Federal Type:	C
Water System Name:	TRIANA WATER WORKS	Federal Source:	SWP
Principal County Served:	MADISON	System Status:	A
Principal City Served:	TRIANA	Activity Date:	01-01-1966

Water System Contacts

Type	Contact	Communication	
AC - Administrative Contact	CAUDLE, HON. MARY 640 6TH STREET TRIANA, AL 35756	**Electronic Type**	**Value**
		EMAIL - Email	ttriana@bellsouth.net
		Phone Type	**Value**
		BUS - Business	256-772-0151
		FAX - Facsimile	256-464-5099
		EMERG - Emergency	256-772-0152
DO - Designated Operator	TONEY, ALONZO 640 6TH STREET TIRANA, AL 35756	**Electronic Type**	**Value**
		EMAIL - Email	ttriana@bellsouth.net
		Phone Type	**Value**
		BUS - Business	256-772-0151
		FAX - Facsimile	256-464-5099
		EMERG - Emergency	256-772-0152

List of Operators Complete Point of Contact List

Sources of Water

Name	Type	Activity	Availability
HUNTSVILLE	CC	A	P
WELL 1 (ZIERDT RD)	WL	I	O

Source Water Percentages

Surface Water	0	Surface Water Purchased	100

Ground Water	0	Ground Water Purchased	0
Ground Water UDI	0	Ground Water UDI Purchased	0

Water Purchases

System No.	System Name	Facility ID	Facility Name	Water Finish
AL0000882	HUNTSVILLE UTILITIES	DS200	DISTRIBUTION SYSTEM	Treated and Filtered

Buyers of Water

Water System No.	Name
No Buyers	

Annual Operating Period(s)

Effective Begin Date	Effective End Date	Start Month/Day	End Month/Day	Type	Population
10-11-2011	No End Date	1/1	12/31	R	1719

Service Connections

Type	Count	Meter Type	Meter Size
RS	573	ME	0

Service Area

Code	Name
R	RESIDENTIAL AREA

Regulating Agencies

Name	Alias/Inspector
ALABAMA DEPT. OF ENVIRONMENTAL MGT.	

Water System Historical Names

Historical Name(s)

System Certification Requirements

Certification Name	Code	Begin Date

WS Flow Rates

Type	Quantity	UOM
AVPD - Average Daily Production	170000	GPD
MDLP - MAXIMUM DAILY PRODUCTION	237000	GPD

WS Measures		
Type	Quantity	UOM

WS Indicators		
Type	Value	Date
SSWP - State Source Water Program	NO	03-12-2009
DBP2 - STAGE 2 DBPR SCHEDULE CATEGORY	1	01-01-2012

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Water System Facilities	Violations Enforcement Actions	TCR Sample Results	TTHM HAA5 Summaries
Sample Points	Assistance Actions	Recent Positive TCR Results	PBCU Summaries
Sample Schedules / FANLs / Plans	Compliance Schedules	Other Chemical Results	Chlorine Summaries
Site Visits Milestones	TOC/Alkalinity Results	Chemical Results by: Name Code	Turbidity Summaries
Operators All POC	LRAA (TTHM/HAA5)	Recent Non-TCR Sample Results	TCR Sample Summaries

Water System Detail Information

Water System No.:	AL0000904	Federal Type:	C
Water System Name:	GURLEY WATER SYSTEM	Federal Source:	SWP
Principal County Served:	MADISON	System Status:	A
Principal City Served:	GURLEY	Activity Date:	02-01-1963

Water System Contacts

Type	Contact	Communication	
		Phone Type	Value
AC - Administrative Contact	WOMACK, CHARLES P O BOX 128 GURLEY, AL 35748	BUS - Business	256-776-3313
		FAX - Facsimile	256-776-2608
		MOB - Mobile	256-679-0690

List of Operators Complete Point of Contact List

Sources of Water

Name	Type	Activity	Availability
MADISON CO.	CC	A	P
HUNTSVILLE	CC	A	E
WELL 1	WL	I	O
WELL 2	WL	I	O

Source Water Percentages

Surface Water	0	Surface Water Purchased	50
Ground Water	0	Ground Water Purchased	50
Ground Water UDI	0	Ground Water UDI Purchased	0

Water Purchases

System No.	System Name	Facility ID	Facility Name	Water Finish
				Treated

AL0000882	HUNTSVILLE UTILITIES	DS200	DISTRIBUTION SYSTEM	and Filte
AL0000888	MADISON COUNTY WATER DEPARTMENT	DS200	DISTRIBUTION SYSTEM	Treated and Filtered

Buyers of Water

Water System No.	Name
No Buyers	

Annual Operating Period(s)

Effective Begin Date	Effective End Date	Start Month/Day	End Month/Day	Type	Population
01-01-2004	No End Date	1/1	12/31	R	1161

Service Connections

Type	Count	Meter Type	Meter Size
RS	387	ME	0

Service Area

Code	Name
R	RESIDENTIAL AREA

Regulating Agencies

Name	Alias/Inspector
ALABAMA DEPT. OF ENVIRONMENTAL MGT.	

Water System Historical Names

Historical Name(s)

System Certification Requirements

Certification Name	Code	Begin Date

WS Flow Rates

Type	Quantity	UOM
AVPD - Average Daily Production	160000	GPD
TLDS - Total Design Capacity	220000	GPD
EMRG - Total Emergency Capacity	192000	GPD

WS Measures		
Type	**Quantity**	**UOM**

WS Indicators		
Type	**Value**	**Date**
SSWP - State Source Water Program	NO	03-12-2009
DBP2 - STAGE 2 DBPR SCHEDULE CATEGORY	1	01-01-2012

Alabama Department of Environmental Management	Water Division	Drinking Water Branch
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Water System Facilities	Violations Enforcement Actions	TCR Sample Results	TTHM HAA5 Summaries
Sample Points	Assistance Actions	Recent Positive TCR Results	PBCU Summaries
Sample Schedules / FANLs / Plans	Compliance Schedules	Other Chemical Results	Chlorine Summaries
Site Visits Milestones	TOC/Alkalinity Results	Chemical Results by: Name Code	Turbidity Summaries
Operators All POC	LRAA (TTHM/HAA5)	Recent Non-TCR Sample Results	TCR Sample Summaries

Water System Detail Information

Water System No.:	AL0000904	Federal Type:	C
Water System Name:	GURLEY WATER SYSTEM	Federal Source:	SWP
Principal County Served:	MADISON	System Status:	A
Principal City Served:	GURLEY	Activity Date:	02-01-1963

Water System Contacts

Type	Contact	Communication	
		Phone Type	Value
AC - Administrative Contact	WOMACK, CHARLES P O BOX 128 GURLEY, AL 35748	BUS - Business	256-776-3313
		FAX - Facsimile	256-776-2608
		MOB - Mobile	256-679-0690

List of Operators Complete Point of Contact List

Sources of Water

Name	Type	Activity	Availability
MADISON CO.	CC	A	P
HUNTSVILLE	CC	A	E
WELL 1	WL	I	O
WELL 2	WL	I	O

Source Water Percentages

Surface Water	0	Surface Water Purchased	50
Ground Water	0	Ground Water Purchased	50
Ground Water UDI	0	Ground Water UDI Purchased	0

Water Purchases

System No.	System Name	Facility ID	Facility Name	Water Finish
				Treated

AL0000882	HUNTSVILLE UTILITIES	DS200	DISTRIBUTION SYSTEM	and Filtered
AL0000888	MADISON COUNTY WATER DEPARTMENT	DS200	DISTRIBUTION SYSTEM	Treated and Filtered

Buyers of Water

Water System No.	Name
No Buyers	

Annual Operating Period(s)

Effective Begin Date	Effective End Date	Start Month/Day	End Month/Day	Type	Population
01-01-2004	No End Date	1/1	12/31	R	1161

Service Connections

Type	Count	Meter Type	Meter Size
RS	387	ME	0

Service Area

Code	Name
R	RESIDENTIAL AREA

Regulating Agencies

Name	Alias/Inspector
ALABAMA DEPT. OF ENVIRONMENTAL MGT.	

Water System Historical Names

Historical Name(s)

System Certification Requirements

Certification Name	Code	Begin Date

WS Flow Rates

Type	Quantity	UOM
AVPD - Average Daily Production	160000	GPD
TLDS - Total Design Capacity	220000	GPD
EMRG - Total Emergency Capacity	192000	GPD

WS Measures		
Type	**Quantity**	**UOM**

WS Indicators		
Type	**Value**	**Date**
SSWP - State Source Water Program	NO	03-12-2009
DBP2 - STAGE 2 DBPR SCHEDULE CATEGORY	1	01-01-2012

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Water System Facilities	Violations Enforcement Actions	TCR Sample Results	TTHM HAA5 Summaries
Sample Points	Assistance Actions	Recent Positive TCR Results	PBCU Summaries
Sample Schedules / FANLs / Plans	Compliance Schedules	Other Chemical Results	Chlorine Summaries
Site Visits Milestones	TOC/Alkalinity Results	Chemical Results by: Name Code	Turbidity Summaries
Operators All POC	LRAA (TTHM/HAA5)	Recent Non-TCR Sample Results	TCR Sample Summaries

Water System Detail Information

Water System No.:	AL0000885	Federal Type:	C
Water System Name:	MADISON WATER WORKS & SEWER	Federal Source:	GU
Principal County Served:	MADISON	System Status:	A
Principal City Served:	MADISON	Activity Date:	01-01-1960

Water System Contacts

Type	Contact	Communication	
AC - Administrative Contact	POUNDERS, RICKY 101 Ray Sanderson Drive MADISON, AL 35758	**Electronic Type**	**Value**
		EMAIL - Email	RPOUNDERS@MADISONWATERBOARD.ORG
		URL - Web address	WWW.MADISONWATERBOARD.ORG
		Phone Type	**Value**
		BUS - Business	256-461-0844
		MOB - Mobile	256-783-7971
		EMERG - Emergency	256-461-0845
DO - Designated Operator	TAYLOR, JEFF 101 Ray Sanderson Drive MADISON, AL 35768	**Electronic Type**	**Value**
		EMAIL - Email	WWW.MADISONWATERBOARD.ORG
		EMAIL - Email	jtaylor@madisonwaterboard.org
		Phone Type	**Value**
		BUS - Business	256-461-0845
		MOB - Mobile	256-679-2397

List of Operators Complete Point of Contact List

Sources of Water

Name	Type	Activity	Availability
LIMESTONE CO.	CC	A	P
NEW FIORENTINO WELL (DUPLICATE W/FIORIN)	WL	A	P
DRAKE WELL	WL	A	P

NICKELSON WELL	WL	A	P
WILLIAMS WELL	WL	A	P
NEW GILLESPIE WELL	WL	A	P
HARDIMAN WELL	WL	A	P
MCCRARY WELL	WL	A	P
ROWE WELL	WL	A	P
HUNTSVILLE UTILITIES	CC	A	E
DUBLIN SPRING	SP	I	O
FIORINTINO WELL	WL	I	O
LADY ANN WELL (NOT ACTIVE SOURCE)	WL	I	O
GILLESPIE WELL (DUPLICATE W/NEW GILLESP)	WL	I	O
SCHRIMSHER WELL (NOT ACTIVE SOURCE)	WL	I	O
QUARRY INTAKE	IN	P	O
TRIANA WELL (TRIANA WELL # 1)	WL	P	O
MURPHY WELL (TRIANA WELL #2)	WL	P	O
COLLIER WELL (TRIANA WELL #3)	WL	P	O

Source Water Percentages			
Surface Water	0	Surface Water Purchased	2
Ground Water	98	Ground Water Purchased	0
Ground Water UDI	0	Ground Water UDI Purchased	0

Water Purchases				
System No.	System Name	Facility ID	Facility Name	Water Finish
AL0000882	HUNTSVILLE UTILITIES	DS200	DISTRIBUTION SYSTEM	Treated and Filtered
AL0000833	LIMESTONE COUNTY WATER SYSTEM	DS200	DISTRIBUTION SYSTEM	Treated, not Filtered

Buyers of Water	
Water System No.	Name
AL0000878	HARVEST-MONROVIA WATER SYSTEM

Annual Operating Period(s)					
Effective Begin Date	Effective End Date	Start Month/Day	End Month/Day	Type	Population
03-23-2005	No End Date	1/1	12/31	R	39051

Service Connections			
Type	Count	Meter Type	Meter Size
RS	15350	ME	0

Service Area	
Code	Name
R	RESIDENTIAL AREA

Regulating Agencies	
Name	Alias/Inspector
ALABAMA DEPT. OF ENVIRONMENTAL MGT.	

Water System Historical Names
Historical Name(s)

System Certification Requirements		
Certification Name	Code	Begin Date

WS Flow Rates		
Type	Quantity	UOM
AVPD - Average Daily Production	5745000	GPD
TLDS - Total Design Capacity	14256000	GPD
EMRG - Total Emergency Capacity	8963000	GPD

WS Measures		
Type	Quantity	UOM

WS Indicators		
Type	Value	Date
SSWP - State Source Water Program	NO	03-12-2009
DBP2 - STAGE 2 DBPR SCHEDULE CATEGORY	1	01-01-2012

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Water System Facilities	Violations Enforcement Actions	TCR Sample Results	TTHM HAA5 Summaries
Sample Points	Assistance Actions	Recent Positive TCR Results	PBCU Summaries
Sample Schedules / FANLs / Plans	Compliance Schedules	Other Chemical Results	Chlorine Summaries
Site Visits Milestones	TOC/Alkalinity Results	Chemical Results by: Name Code	Turbidity Summaries
Operators All POC	LRAA (TTHM/HAA5)	Recent Non-TCR Sample Results	TCR Sample Summaries

Water System Detail Information

Water System No.:	AL0000897	Federal Type:	C
Water System Name:	OWENS CROSSROADS WATER AUTHORITY	Federal Source:	GW
Principal County Served:	MADISON	System Status:	A
Principal City Served:		Activity Date:	10-01-1966

Water System Contacts

Type	Contact	Communication	
AC - Administrative Contact	MORRISON, RANDY MR. RANDY MORRISON, CHAIRMAN P O BOX 188 OWENS CROSSROAD, AL 35763	**Phone Type**	**Value**
		BUS - Business	256-725-4203
		FAX - Facsimile	256-725-7979
		EMERG - Emergency	256-725-4203
DO - Designated Operator	JONES, BARRY 1074 ALBERT MANN ROAD NEW HOPE, AL 35760	**Electronic Type**	**Value**
		EMAIL - Email	bjonesocr@nehp.net
		Phone Type	**Value**
		BUS - Business	256-990-6164

List of Operators Complete Point of Contact List

Sources of Water

Name	Type	Activity	Availability
WELL #2, 350 GPM	WL	A	P
WELL #1, 350 GPM	WL	A	P
HUNTSVILLE	CC	A	E
MADISON COUNTY	CC	I	E

Source Water Percentages

Surface Water	0	Surface Water Purchased	0
Ground Water	100	Ground Water Purchased	0
Ground Water UDI	0	Ground Water UDI Purchased	0

Water Purchases				
System No.	System Name	Facility ID	Facility Name	Water Finish
AL0000882	HUNTSVILLE UTILITIES	DS200	DISTRIBUTION SYSTEM	Treated and Filtered
AL0000888	MADISON COUNTY WATER DEPARTMENT	DS200	DISTRIBUTION SYSTEM	Treated, not Filtered

Buyers of Water	
Water System No.	Name
AL0000888	MADISON COUNTY WATER DEPARTMENT
AL0000893	NEW HOPE WATER SYSTEM

Annual Operating Period(s)					
Effective Begin Date	Effective End Date	Start Month/Day	End Month/Day	Type	Population
01-06-2011	No End Date	1/1	12/31	R	6375

Service Connections			
Type	Count	Meter Type	Meter Size
RS	2125	ME	0

Service Area	
Code	Name
R	RESIDENTIAL AREA

Regulating Agencies	
Name	Alias/Inspector
ALABAMA DEPT. OF ENVIRONMENTAL MGT.	

Water System Historical Names
Historical Name(s)

System Certification Requirements		
Certification Name	Code	Begin Date

WS Flow Rates		
Type	Quantity	UOM
AVPD - Average Daily Production	600000	GPD
TLDS - Total Design Capacity	1000000	GPD
EMRG - Total Emergency Capacity	1008000	GPD
MDLP - MAXIMUM DAILY PRODUCTION	836000	GPD

WS Measures		
Type	Quantity	UOM
PIPE - Pipe	24	MIL
ACP - Asbestos Cement Pipe	52	MIL

WS Indicators		
Type	Value	Date
SSWP - State Source Water Program	NO	03-12-2009
DBP2 - STAGE 2 DBPR SCHEDULE CATEGORY	1	01-01-2012

Alabama Department of Environmental Management	Water Division	Drinking Water Branch
County Map of AL	Water System Search	Help

Water System Facilities	Violations Enforcement Actions	TCR Sample Results	TTHM HAA5 Summaries
Sample Points	Assistance Actions	Recent Positive TCR Results	PBCU Summaries
Sample Schedules / FANLs / Plans	Compliance Schedules	Other Chemical Results	Chlorine Summaries
Site Visits Milestones	TOC/Alkalinity Results	Chemical Results by: Name Code	Turbidity Summaries
Operators All POC	LRAA (TTHM/HAA5)	Recent Non-TCR Sample Results	TCR Sample Summaries

Water System Detail Information

Water System No.:	AL0000899	Federal Type:	C
Water System Name:	US ARMY AVIATION & MISSILE COMMAND	Federal Source:	SW
Principal County Served:	MADISON	System Status:	A
Principal City Served:	REDSTONE ARSENAL	Activity Date:	01-01-1960

Water System Contacts

Type	Contact	Communication	
		Phone Type	Value
AC - Administrative Contact	HAZZLE, TERRY ATTN:AMSAM-RA-EPW (HAZZLE) REDSTONE ARSENAL, AL 35898-5300	BUS - Business	256-955-7591
		EMERG - Emergency	256-876-1739

List of Operators Complete Point of Contact List

Sources of Water

Name	Type	Activity	Availability
TENNESSEE RIVER-PLANT 1	IN	A	P
TENNESSEE RIVER-PLANT 2	IN	A	P
HUNTSVILLE	CC	A	E

Source Water Percentages

Surface Water	100	Surface Water Purchased	0
Ground Water	0	Ground Water Purchased	0
Ground Water UDI	0	Ground Water UDI Purchased	0

Water Purchases

System No.	System Name	Facility ID	Facility Name	Water Finish
			DISTRIBUTION	Treated

AL0000882	HUNTSVILLE UTILITIES	DS200	SYSTEM	and Filtered

Buyers of Water	
Water System No.	Name
No Buyers	

Annual Operating Period(s)					
Effective Begin Date	Effective End Date	Start Month/Day	End Month/Day	Type	Population
01-01-2004	No End Date	1/1	12/31	R	28500

Service Connections			
Type	Count	Meter Type	Meter Size
RS	60	ME	0

Service Area	
Code	Name
R	RESIDENTIAL AREA

Regulating Agencies	
Name	Alias/Inspector
ALABAMA DEPT. OF ENVIRONMENTAL MGT.	

Water System Historical Names
Historical Name(s)

System Certification Requirements		
Certification Name	Code	Begin Date

WS Flow Rates		
Type	Quantity	UOM
AVPD - Average Daily Production	3539000	GPD
TLDS - Total Design Capacity	7130000	GPD

WS Measures		
Type	Quantity	UOM

WS Indicators		
Type	**Value**	**Date**
SSWP - State Source Water Program	NO	03-12-2009
DBP2 - STAGE 2 DBPR SCHEDULE CATEGORY	1	01-01-2012

HUNTSVILLE UTILITIES GROUNDWATER ASSESSMENT

FOR THE HAMPTON COVE WELL, WILLIAMS WELL, LOWE MILL WELL AND THE LINCOLN/DALLAS WELLS

HUNTSVILLE UTILITIES
WATER QUALITY LABORATORY
14000 South Memorial Parkway
Huntsville Alabama 35803

Revised April 23, 2002

Table 3.--Potential sources of contamination and identification codes
(from Alabama Department of Environmental Management, 1991)

1	Gas stations/service stations	33	Machine shops
2	Truck terminals	34	Metal platers
3	Fuel oil distributors/storers	35	Heat treaters/smelters/descalers
4	Oil pipelines	36	Wood preservers
5	Auto repair shops	37	Chemical reclamation sites
6	Body shops	38	Boat builders/refinishers
7	Rust proofers	39	Industrial waste disposal sites
8	Auto chemical suppliers	40	Wastewater impoundment areas
9	Pesticide/herbicide/insecticide suppliers	41	Municipal wastewater treatment plants/land application areas
10	Small engine repair shops	42	Landfills/dumps/transfer stations
11	Dry cleaners	43	Junk/salvage yards
12	Furniture strippers	44	Subdivisions
13	Painters/finishers	45	Individual residences
14	Photographic processors	46	Heating oil storage (consumptive use) sites
15	Printers	47	Golf courses/parks/nurseries
16	Automobile washes	48	Sand and gravel mining/other mining
17	Laundromats	49	Abandoned wells
18	Beauty salons	50	Manure piles
19	Medical/dental/veterinarian offices	51	Feed lots
20	Research laboratories	52	Agricultural chemical spreading/spraying
21	Food processors	53	Agricultural chemical storage sites
22	Meat packers/slaughter houses	54	Construction sites
23	Concrete/asphalt/tar/coal companies	55	Transportation corridors
24	Treatment plant lagoons	56	Fertilized fields/agricultural areas
25	On-site sewage	57	Petroleum tank farms
26	Railroad yards	58	Existing wells
27	Stormwater impoundments	59	Nonagricultural applicator sites
28	Cemeteries	60	Sinkholes
29	Airport maintenance shops	61	Injection wells
30	Airport fueling areas	62	Drainage wells
31	Airport firefighter training areas	63	Other
32	Industrial manufacturers		

spreading rapidly to rural areas north, northeast, southeast, and northwest of the city of Huntsville. The Huntsville wells are located in the Madison, Huntsville, and Moontown 7.5-minute quadrangles. Figure 1 shows the location of Huntsville within Madison County, Alabama.

PHYSIOGRAPHIC DISTRICT AND TOPOGRAPHY

The study area of the Huntsville WHPP lies at the southeastern edge of the Tennessee Valley district of the Highland Rim physiographic section of the Interior Low Plateaus province and the

WATER WITHDRAWAL

During 2001, The Huntsville water system withdrew approximately 13 million gallons per day (MGD) from their three wells, providing water for an estimated 69,000 people. The Dallas-Lincoln wells, treated as one well, produced the most water supplying 8.22 MGD. Neither Brahan Spring nor Hampton Cove was utilized in 2001 for potable water production. Table 5 shows water production from the Huntsville wells for 2001.

Table 5.—Water withdrawal during 2001 from the Huntsville Utilities Water Department wells

Month	Lincoln-Dallas	Lowe Mill	Williams	Total used
January	257,167,000	37,617,000	76,730,000	371,514,000
February	239,760,000	33,848,000	80,236,000	353,844,000
March	263,433,000	38,203,000	146,496,000	448,132,000
April	245,238,000	37,332,000	120,644,000	403,214,000
May	258,287,000	37,170,000	120,495,000	415,952,000
June	253,284,000	36,134,000	107,481,000	396,999,000
July	255,963,000	36,951,000	100,015,000	392,929,000
August	248,256,000	36,688,000	140,356,000	425,300,000
September	243,144,000	34,987,000	108,100,000	386,231,000
October	248,030,000	34718,000	107,751,000	390.499,000
November	238,358,000	35,201,000	103,011,000	376,570,000
December	254,589,000	35,753,000	155,108,000	445,450,000
Total for year	3,000,993,500	434,602,000	1,366,423,000	4,802,018,500
Average per day	8,221,900	1,190,000	3,743,625	13,155,525

GEOLOGY

Rocks cropping out in Huntsville Utilities Water Department WHPA's include limestone,Sandstone, shale, and dolomite of Mississippian and Pennsylvanian ages as well as unconsolidated sand, clay and gravel of Quaternary age (pls. A1, B1, and C1). Rock units exposed include, in ascending order, the Fort Payne Chert, the Tuscumbia Limestone, the Monteagle Limestone, the Hartselle Sandstone, the Bangor Limestone, and the Pennington Formation of Mississippian age and the Pottsville Formation of Pennsylvanian age (fig.4)

In the subsurface, rocks of Devonian, Silurian, and Ordovician age have been penetrated by oil and gas test wells. Rock units of significance include, in ascending order, the Chattnooga Shale of Devonian age and the Maury Formation and the Fort Payne Chert of Mississippian age (fig.4). Wells

MISSISSIPPIAN SYSTEM

Mississippian strata in the five WHPA's include the Maury Formation, the Fort Payne Chert, the Tuscumbia Limestone, the Monteagle Limestone, the Hartselle Sandstone, the Bangor Limestone, and the Pennington Formation (fig. 4).

MAURY FORMATION

The Maury Formation unconformably overlies the Chattanooga Shale. The formation consists of green fossiliferous clay shale that sometimes appears in well cuttings as bright green clay fragments. The clay shale contains pyrite, glauconite, and small phosphate nodules. Thickness of the Maury is reported to be 3 to 9 feet in the WHPA's. With the Chattanooga Shale, the Maury serves as an aquitard.

FORT PAYNE CHERT

The Fort Payne Chert of Mississippian age conformably overlies the Maury Formation. The formation consists of light- to medium-gray fine- to coarse-grained, thin-bedded to massive, siliceous, crystalline, fossiliferous limestone with abundant light-gray to black, nodular and bedded chert (Chaffin and Szabo, 1975a). Thomas (1972) defines the top of the Fort Payne as the "top of the stratigraphically highest dark-colored fine-grained limestone, highest siliceous limestone, highest bedded chert, and/or highest dark-colored chert below the Tuscumbia Limestone." Beds of dolomite and limestone range in thickness from 3 inches to 4 feet (McMaster and Harris, 1963). Quartz-lined geodes are common in some horizons in the Fort Payne and are locally abundant in the residuum.

Fossils are common in the fresh rock and very common in residual chert, which generally contains casts and molds of large crinoid stem plates, brachiopods, and horn corals. Chaffin and Szabo (1975a) report the following fossils from the Fort Payne: *Spirifer logani* Hall, *Brachythyris suborbicularis* (Hall), *Spirifer rostellatus* Hall, *Amplexizaphrentis centralis* (Milne-Edwards and Haime), *Baticrinus* sp., *Hadrophyllum* sp., and large crinoid stems and plates.

Weathering of the Fort Payne produces a thick residuum of yellowish-brown clay containing blocky chert. Large crinoid stems are characteristic of the Fort Payne.

Malmberg and Downing (1957) report a thickness of 95 to 160 feet for the Fort Payne in Madison County. Holler (1975) assumes an average thickness of 160 feet for the Fort Payne in Madison County. Thickness variation is thought to be in part the result of localized solutional thinning.

The Fort Payne is the major bedrock aquifer in the five Huntsville WHPA's. The formation supplies water to almost all the large-capacity municipal and industrial wells in the Madison and Huntsville areas. The Lincoln, Brahan Spring, and Williams wells produce from the Fort Payne Chert.

TUSCUMBIA LIMESTONE

The Tuscumbia Limestone of Mississippian age conformably overlies the Fort Payne Chert and crops out in the low-lying areas of all the Huntsville WHPA's, underlying generally flat to gently rolling topography. The Tuscumbia is a light-gray, light-brownish-gray, to dark-gray medium-grained thin-bedded to massive crystalline and bioclastic limestone with some very light-gray to black nodules and lenses of chert (Chaffin and Szabo, 1975a) (fig. 5). Some of the bioclastic limestones are oolitic, especially in the uppermost part of the formation in the eastern Huntsville area. Thin lenses of finely crystalline dolomite and dolomitic limestone are present locally (Thomas, 1972). Massive beds are often cross bedded.

Fresh exposures of the Tuscumbia are limited because the formation weathers to a cherty clay residuum that is typically dark-reddish-brown or yellowish-brown (McMaster and Harris, 1963). Chert in the residuum is generally grainy and contains small crinoid and bryozoan fossils. The coral *Lithostrotion proliferum* is locally abundant in the upper part of the formation. The lower part of the formation may also yield quartz-lined geodes. Locally, the residuum is essentially chert free.

Fenestrate bryozoa and small crinoid columnals are characteristic of the Tuscumbia Limestone. Other diagnostic fossils include *Spirifer bifurcatus* Hall, *Spirifer lateralis* Hall, *Reticularia setigera* (Hall), *Lithostrotionella castelnaui* Hayasaka, and *Lithostrotion proliferum* Hall (Malmberg and Downing, 1957). Chaffin and Szabo (1975) report the thickness of the Tuscumbia to range from 90 to 160 feet. Malmberg and Downing (1957) report a thickness of 160 to 200 feet.

The Tuscumbia provides water to the Hampton Cove public supply well and some other wells in the Hampton Cove WHPA.

MONTEAGLE LIMESTONE

The Monteagle Limestone of Mississippian age conformably overlies the Tuscumbia Limestone and is characterized by light- to medium-gray fine- to medium-grained thin- to thick-bedded crystalline bioclastic and oolitic limestone. The upper beds contain scattered chert nodules and lenses. The lower beds are typically oolitic cross-bedded limestone and reach 10 feet in thickness. Several medium-gray beds of shale are present in the upper part of the formation. Minor amounts of medium-gray chert occur as nodules in the formation. The limestone of the Monteagle weathers to a karst surface characterized by fluted ridges or lapies (fig. 6).

Fossils characteristic of the formation include the blastoid *Pentremites*, the brachiopod *Inflatia inflata* (McChesney), the crinoid *Platycrinites penicillus* (Meek and Worthen), and the compound coral *Campophyllum gasperense* (Chaffin and Szabo, 1975).

STRUCTURE

Madison County lies on the southern flank of the Nashville dome. The regional dip is to the south and southwest at about 20 feet per mile; however, minor folds modify the dip locally so that rocks vary widely in the direction and degree of dip.

Structure of the five WHPA's was mapped on the Chattanooga Shale because of its distinctive character, its lateral continuity in the study area, and the fact that it generally serves as a major aquitard in the area. Regional structure maps of the Chattanooga by Malmberg and Downing (1957), McMaster and Harris (1963), and Jewell (1969) were considered during preparation of the structure maps for the WHPA's.

Detailed mapping in Madison County indicates that the top of the Chattanooga is much more irregular than previously reported (Malmberg and Downing, 1957; McMaster and Harris, 1963; and Jewell, 1969). Because structural control is limited in parts of the WHPA's, it is likely that there is more variability in the structure than the present maps indicate.

LINCOLN-DALLAS, LOWE MILLS, AND BRAHAN SPRING

Detailed mapping of the top of the Chattanooga Shale indicates that the overall dip of beds in and around the three WHPA's is to the south. However, this dip is locally greatly disturbed. A long syncline trends from the north at Smithers Mountain southward to Brahan Spring (pl. B3). The Lowe Mills well lies in a structurally low basin on the axis of this syncline and near the termination of the syncline. The Lincoln-Dallas wells are on the eastern flank of the syncline and east of a structural depression on the axis of the syncline (pl. C3). A south-southeastward plunging anticline is present in the western part of the WHPA's. Another south-southwestward plunging anticline is present in the eastern part of the WHPA's (pl. C3).

The location of the high-yield public supply wells along the north-south-trending synclinal trough is the direct result of the concentration of ground-water flow into the structural trough. Brahan Spring is present at the termination of the trough, the point of greatest concentration of ground-water flow. The north-south orientation of the synclinal trough probably relates to the presence of a north-south joint system that has influenced solution and/or typography of the pre-Chattanooga carbonates in the subsurface. (See section on joints below.)

WILLIAMS

Detailed mapping of the top of the Chattanooga Shale indicates numerous local anticlines modify dip in the vicinity of the William WHPA. A southeastward-plunging anticline lies northwest of the WHPA and the Williams well is situated on the axis of the fold near its termination (pl. C3). Rocks in

table, leaving dry cavity systems as a relic of former permeable zones of saturation. Present dry cavity systems probably serve as paths of recharge to the ground water or as paths of contaminant movement.

Flow patterns of ground-water movement in the Huntsville area were determined by creating potentiometric surface maps for each WHPA (pl. A5, B5, C5). Data for the maps consist of water level measurements taken from wells in the area during a 2-week period in November 1995. Very few of the many water wells drilled or dug previously in the Huntsville area currently exist. Therefore, current data were too sparse to create a satisfactory potentiometric map. Owing to this paucity of well data, it was necessary to use historical data from currently nonexisting wells. However, measurements for these wells were taken over a time period of many years which had varying amounts of precipitation in the area. In an attempt to standardize the measurements somewhat, only measurements taken from May to November were used.

The potentiometric maps represent the water-table elevation for the Ft. Payne Chert / Tuscumbia Limestone aquifer. Direction of flow, illustrated by arrows on the plates, is generally perpendicular to the water-level contours. In the Madison County area, the general direction of flow of ground water follows the the regional dip of rock strata, about 20 feet per mile or about 0.2°, to the south and south-southwest toward the Tennessee River. However, as mentioned earlier, surface topography exerts a strong influence on local ground-water flow direction. The rock strata are also very slightly folded, and since ground water typically moves along bedding planes in the rock, water may move down the slopes of these folds.

Tracer studies utilize an identifiable element or property, either naturally occurring or artificially introduced, to trace the direction and determine the rate of movement of subsurface water through an aquifer. A tracer may be a dye, brightener, physical property of water, chemical, radioactive element, plant spores, or other objects added to the water.

The use of dye or brighteners to track ground-water movement in conduit or fractured flow aquifers can be especially effective. A tracer substance can be introduced into the ground-water flow system, be allowed to move within the system, and then be detected at other points. Detection points may be wells, springs, or any other ground-water discharge point. If the tracer is detected at a known time, ground-water travel times may then be calculated for the aquifer.

Two dye tracer studies performed by the Alabama Geological Survey in 1991 can be used to help define the wellhead protection area boundaries and determine the direction of ground-water flow for the Lincoln-Dallas wells, the Lowe Mills well, and Brahan Spring (Moser and Rheams, 1992). Three pounds of fluorescein dye were introduced into a moderately fast-flowing stream flowing in a southeasterly direction at an estimated rate of 10 to 12 gpm in Shelta Cave (pl. B5). The dye was deposited approximately 10 feet upstream from point where the water disappeared into a sump below a limestone overhang. Pickup points were established in the Lincoln Well, at Brahan Spring, at

GEOLOGICAL SURVEY OF ALABAMA

Ernest A. Mancini
State Geologist

MINERAL RESOURCES DIVISION

GEOLOGIC, HYDROLOGIC, AND BIOLOGIC INVESTIGATIONS IN ARROWWOOD, BOBCAT, MATTHEWS, AND SHELTA CAVES AND SELECTED CAVES, MADISON COUNTY, ALABAMA

By

Karen F. Rheams, Paul H. Moser, and Stuart W. McGregor

Prepared in cooperation with the
U.S. Department of the Interior
Fish and Wildlife Service

Cooperative Agreement
No. 14-16-0004-90-967

Tuscaloosa, Alabama
1992

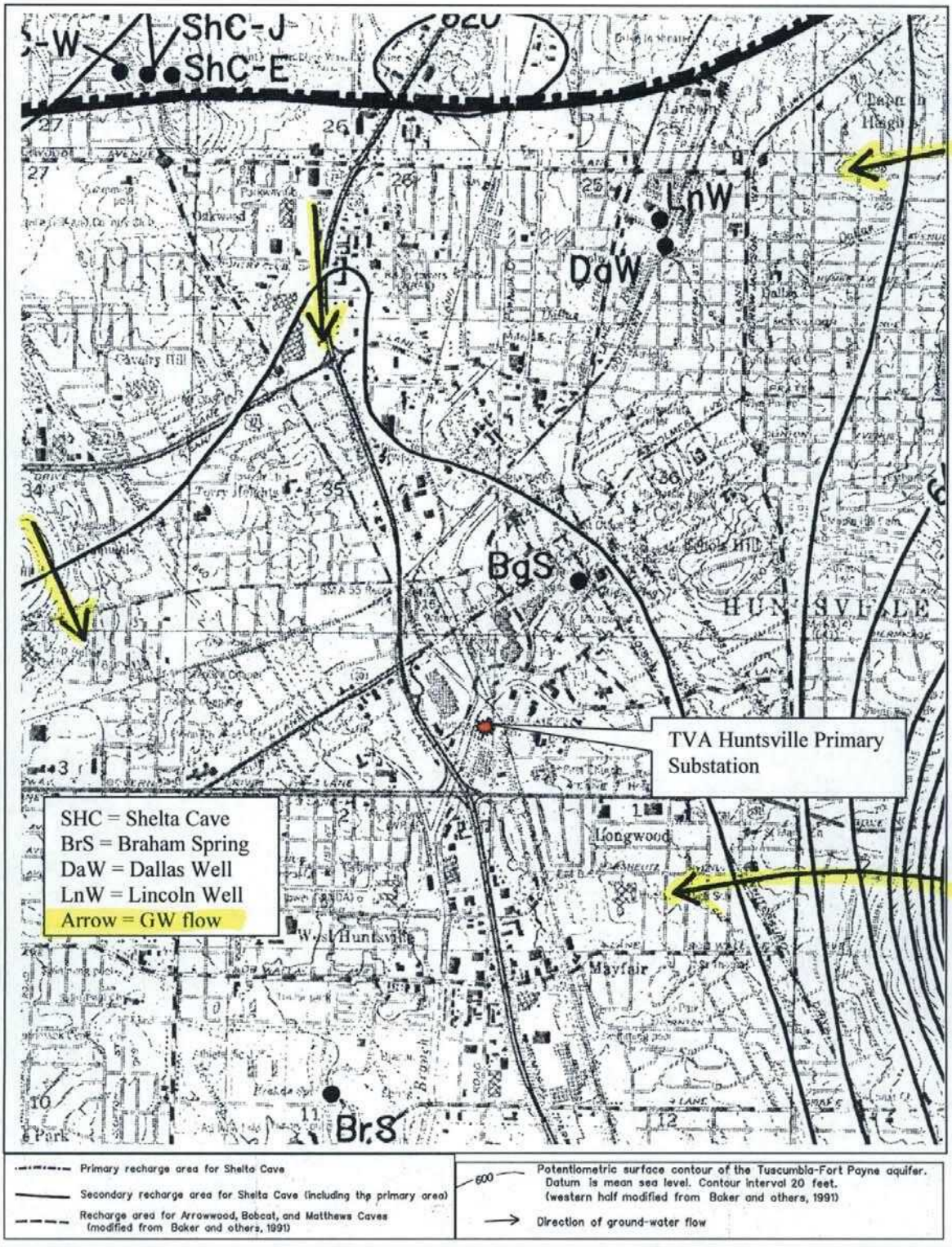
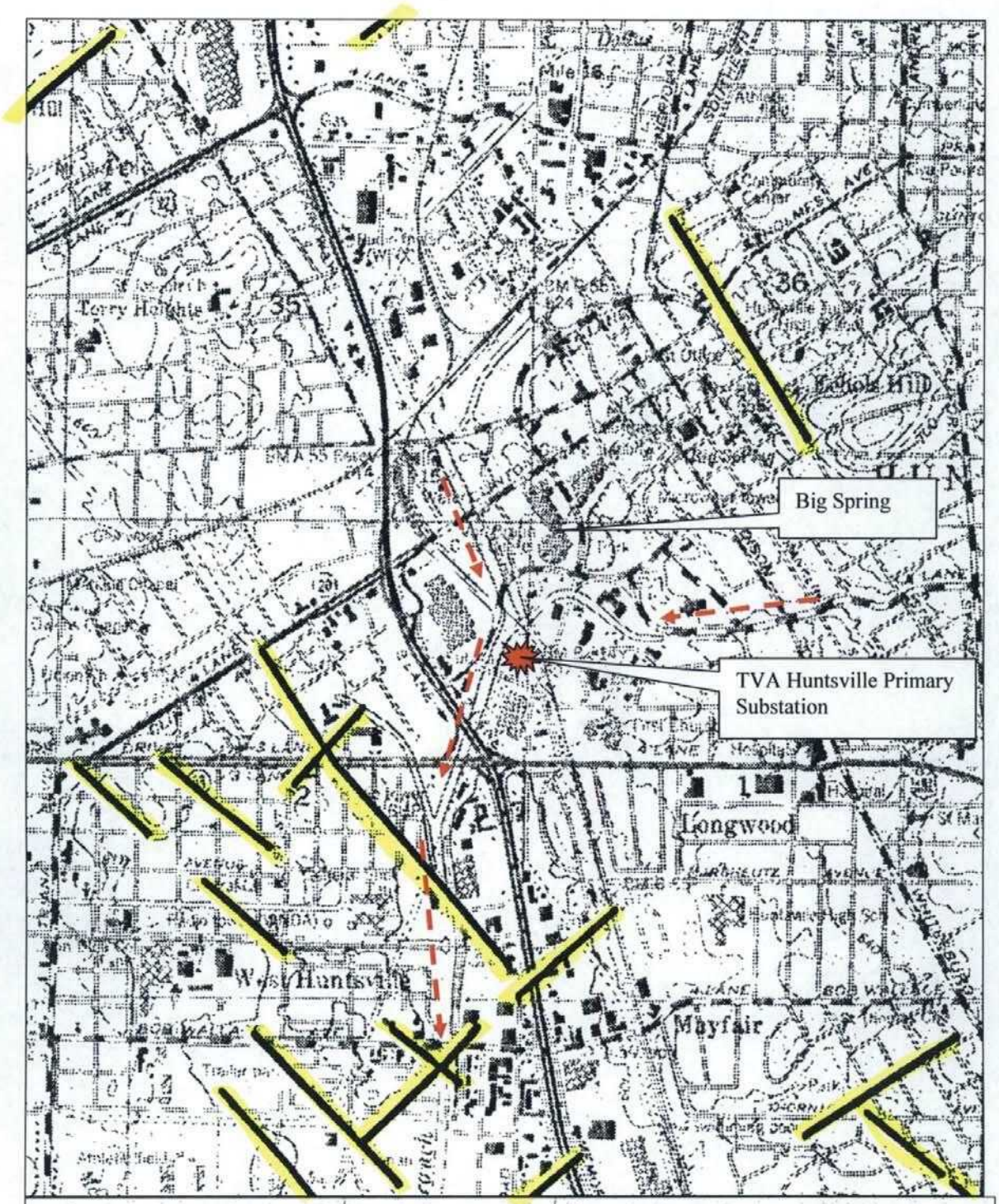


Plate 1: Primary Study Area in West-Central Madison County, Showing Potentiometric Surface, Dye Drop and Dye Pick-Up Sites, Significant Wells, Caves, and Springs, and Recharge Areas for Arrowwood, Bobcat, Mathews, and Shelta Caves. Map By Sydney DeJarnette, 1992. From Mancini, E. A., Geologic, Hydrologic, and Biologic Investigations in Arrowwood, Bobcat, Matthews, and Shelta Caves and Selected Caves, Madison County, Alabama; Geological Survey of Alabama, Tuscaloosa, Alabama, 1992.



Lineament from infrared imagery south of latitude of Meridianville and from Soil Conservation Service black- and -white photo mosaic north of latitude of Meridianville.

Plate 3: Primary Study Area in West-Central Madison County, Showing Lineaments. Map By Marlon R. Cook and Joni Jackle, 1992. From Mancini, E. A., Geologic, Hydrologic, and Biologic Investigations in Arrowwood, Bobcat, Matthews, and Shelta Caves and Selected Caves, Madison County, Alabama; Geological Survey of Alabama, Tuscaloosa, Alabama, 1992. Red arrows show stream flow.

REFERENCE 12

LOW-FLOW AND FLOW-DURATION CHARACTERISTICS OF ALABAMA STREAMS

By J.B. Atkins and J.L. Pearman

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 93-4186

Prepared in cooperation with the

ALABAMA DEPARTMENT
OF ENVIRONMENTAL MANAGEMENT

and the

TENNESSEE VALLEY AUTHORITY

Tuscaloosa, Alabama

1994

U.S. DEPARTMENT OF THE INTERIOR
BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY
GORDON P. EATON, Director

For additional information
write to:

District Chief
U.S. Geological Survey
520 19th Avenue
Tuscaloosa, AL 35401

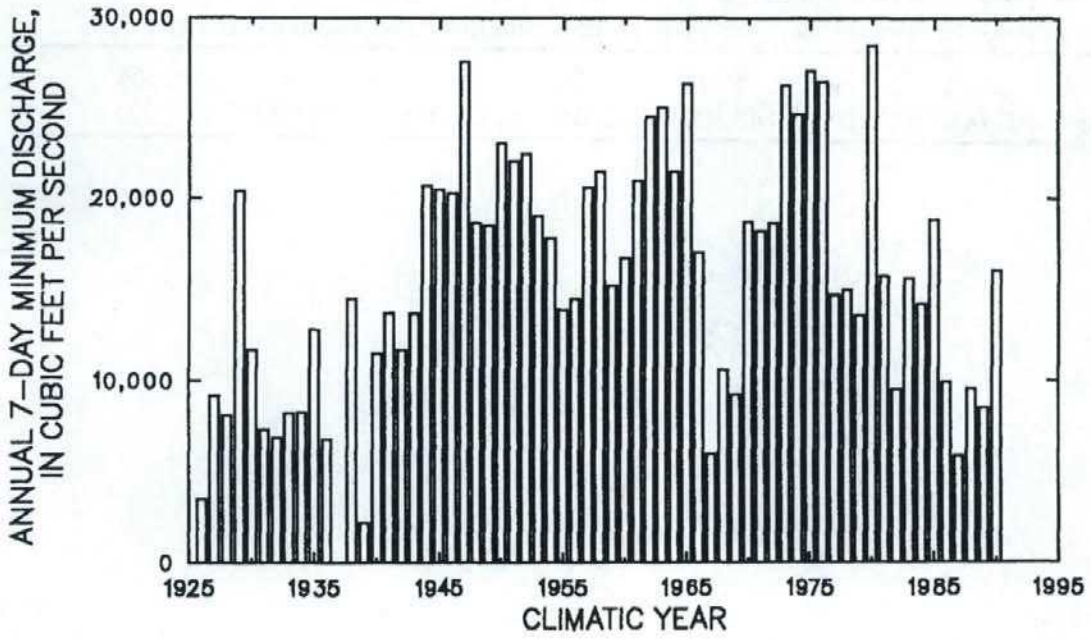
Copies of this report can be
purchased from:

U.S. Geological Survey
Earth Science Information Center
Open-File Reports Section
Box 25286, MS 517
Denver Federal Center
Denver, CO 80225

03575500 TENNESSEE RIVER AT WHITESBURG, ALA.

LOCATION.--Lat 34°34'18", long 86°33'29", in SW$^1/_4$ sec. 29, T. 5 S., R. 1 E., Madison County, Hydrologic Unit 06030002, at Whitesburg, 2,500 ft upstream from Aldridge Creek, 3,000 ft upstream from U.S. Highway 231, 11.0 mi south of Huntsville, 15.1 mi downstream from Guntersville Dam, and at mile 333.9.
DRAINAGE AREA.--25,610 mi^2.
PERIOD OF RECORD.--October 1924 to September 1990.
AVERAGE DISCHARGE.--66 years (water years 1925-90), 42,940 ft^3/s.
REMARKS.--Flow regulated since 1936 by increasing numbers of reservoirs above station. Low-flow characteristics were estimated for pre-regulated conditions.

PLOT OF ANNUAL 7-DAY MINIMUM DISCHARGES



LOW-FLOW CHARACTERISTICS
(Based on 1926-36 climatic years)

Low-flow characteristic	Discharge (cubic feet per second)	Time-sampling error (in percent)
7-day, 2-year	8,570	14
7-day, 10-year	4,880	18

NON-EXCEEDANCE PERCENTILES OF ANNUAL 7-DAY MINIMUM DISCHARGES
(Based on 1941-90 climatic years)

Discharge, in cubic feet per second, which was not exceeded for indicated percentage of years									
Percent	10	20	30	40	50	60	70	80	90
Discharge	9,540	13,600	14,600	15,800	18,400	18,900	20,900	23,000	26,400

FLOW-DURATION CHARACTERISTICS
(Based on 1940-90 water years)

Discharge, in cubic feet per second, which was exceeded for indicated percentage of days							
Percent	5	10	25	50	75	90	95
Discharge	107,000	75,100	48,500	35,100	25,300	16,900	12,500

03575700 ALDRIDGE CREEK NEAR FARLEY, ALA.

LOCATION.--Lat 34°37'26", long 86°32'28", in NE$^1/_4$ sec. 8, T. 5 S., R. 1 E., Madison County, Hydrologic Unit 06030002, on abandoned county road, 2.4 mi northeast of Farley, and 5.2 mi upstream from mouth.
DRAINAGE AREA.--14.1 mi^2.
PERIOD OF RECORD.--January 1960 to February 1964.
REMARKS.--Correlated with station 03575830 using Stedinger and Thomas method.

LOW-FLOW CHARACTERISTICS
(Based on 1962-63 climatic years)

Low-flow characteristic	Discharge (cubic feet per second)	Time-sampling error (in percent)
7-day, 2-year	0.5	25
7-day, 10-year	0.1	34

Table 2.--Low-flow characteristics for partial-record stations in Alabama--Continued

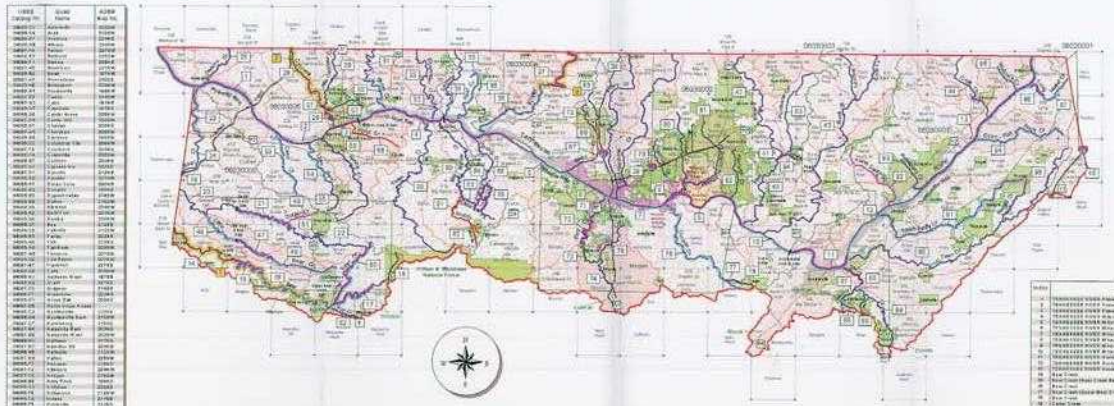
Map number, station number, and station name	Station location	Drainage area (mi^2)	$7Q_2$ (ft^3/s)	Error SE-2 (percent)	$7Q_{10}$ (ft^3/s)	Error SE-10 (percent)	Index station number	Method
379 03575850 Indian Creek at Martin Road near Huntsville	Lat 34°38'43", long 86°41'09" in $SW^1/_4NE^1/_4SE^1/_4$ sec. 36, T. 4 S., R. 2 W., Madison County, Hydrologic Unit 06030002, at bridge on Martin Road, 6.5 mi southwest of West Station Post Office in Huntsville.	62.7	4.5	--	2.7	--	03576250	G
380 03576146 West Fork Cotaco Creek near Florette	Lat 34°23'09", long 86°39'47" in $SE^1/_4NW^1/_4$ sec. 32, T. 7 S., R. 1 W., Morgan County, Hydrologic Unit 06030002, at bridge on State Highway 67, approximately 3 mi southeast of Florette.	51.4	0.05	--	0.0	--	02450000	G
381 03576200 Limestone Creek at Bobo	Lat 34°57'45", long 86°42'48" in $SE^1/_4SE^1/_4SE^1/_4$ sec. 10, T. 1 S., R. 2 W., Madison County, Hydrologic Unit 06030002, at bridge on Bobo Section Road, 0.7 mi east of Bobo.	15.6	0.1	--	0.04	--	03576250	G
382 03576206 Limestone Creek at Toney	Lat 34°54'51", long 86°43'51" in $NW^1/_4SW^1/_4NW^1/_4$ sec. 34, T. 1 S., R. 2 W., Madison County, Hydrologic Unit 06030002, at bridge on Old Railroad Bed Road, 50 ft upstream from Dry Creek, and 1.1 mi north of Toney.	21.2	1.8	--	1.3	--	03575000	G
383 03576208 Limestone Creek near Toney	Lat 34°55'12", long 86°45'52" in $SW^1/_4SW^1/_4SW^1/_4$ sec. 29, T. 1 S., R. 2 W., Madison County, Hydrologic Unit 06030002, at bridge on State Highway 53, 0.1 mi downstream from Sweetwater Branch, and 2.3 mi northwest of Toney.	27.7	3.7	--	2.7	--	03575000	G
384 03576210 Little Limestone Creek near Pinedale	Lat 34°57'45", long 86°48'34" in $NE^1/_4$ sec. 14, T. 1 S., R. 3 W., Limestone County, Hydrologic Unit 06030002, at bridge on Pulaski Pike at Piney Grove Church, 0.1 mi east of Pinedale, and 2.5 mi southeast of Ardmore.	15.1	0.15	--	0.1	--	03576250	G
385 03576215 Little Limestone Creek at Bethel	Lat 34°55'59", long 86°48'24" in $NE^1/_4$ sec. 26, T. 1 S., T. 3 W., Limestone County, Hydrologic Unit 06030002, at bridge on county road, 0.8 mi east of Bethel.	20.6	0.2	--	0.12	--	03576250	G

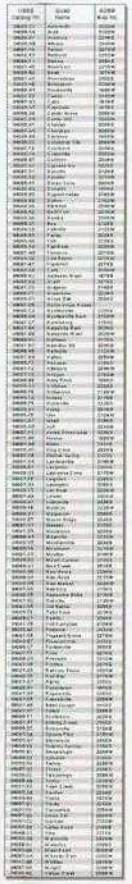
REFERENCE 13

FINAL

Tennessee River Basin Classified Waters

ADEM Water Division-Water Quality Program
Chapter 335-6-11
Water Use Classifications for Interstate and Intrastate Waters
Effective Date: 01/12/2001





ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION - WATER QUALITY PROGRAM

CHAPTER 335-6-11
WATER USE CLASSIFICATIONS FOR INTERSTATE AND INTRASTATE WATERS

TABLE OF CONTENTS

335-6-11-.01 The Use Classification System.

(1) Use classifications utilized by the State of Alabama are as follows:

Outstanding Alabama Water	OAW
Public Water Supply	PWS
Swimming and Other Whole Body Water-Contact Sports	S
Shellfish Harvesting	SH
Fish and Wildlife	F&W
Limited Warmwater Fishery	LWF
Agricultural and Industrial Water Supply	A&I

(2) Use classifications apply water quality criteria adopted for particular uses based on existing utilization, uses reasonably expected in the future, and those uses not now possible because of correctable pollution but which could be made if the effects of pollution were controlled or eliminated. Of necessity, the assignment of use classifications must take into consideration the physical capability of waters to meet certain uses.

(3) Those use classifications presently included in the standards are reviewed informally by the Department's staff as the need arises, and the entire standards package, to include the use classifications, receives a formal review at least once each three years. Efforts currently underway through local 201 planning projects will provide additional technical data on certain streams in the State, information on treatment alternatives, and applicability of various management techniques, which, when available, will hopefully lead to new decisions regarding use classifications. Of particular interest are those segments which are currently classified for any usage which has an associated degree of quality criteria considered to be less than that applicable to a classification of "Fish and Wildlife." As rapidly as it can be demonstrated that new classifications are feasible and attainable on these segments from an economic and technological viewpoint, based on the information being generated pursuant to water quality studies and the planning efforts previously outlined, such improvement will be proposed. For those segments where such a demonstration cannot be made, use attainability analyses describing in detail

the factors preventing attainment of the "Fish and Wildlife" use will be prepared pursuant to federal requirements and updated as new information becomes available.

(4) Although it is not explicitly stated in the classifications, it should be understood that the use classification of "Shellfish Harvesting" is only applicable in the coastal area and, therefore, is included only in the Mobile River Basin and the Perdido-Escambia River Basin. It should also be noted that with the exception of those segments in the "Public Water Supply" classification, every segment, in addition to being considered acceptable for its designated use, is also considered acceptable for any other use with a less stringent associated criteria.

(5) Not all waters are included by name in the use classifications since it would be a tremendous administrative burden to list all stream segments in the State. In addition, in virtually every instance where a segment is not included by name, the Department has no information or stream data upon which to base a decision relative to the assignment of a particular classification. An effort has been made, however, to include all major stream segments and all segments which, to the Department's knowledge, are currently recipients of point source discharges. Those segments which are not included by name will be considered to be acceptable for a "Fish and Wildlife" classification unless it can be demonstrated that such a generalization is inappropriate in specific instances.

Author: James E. McIndoe.
Statutory Authority: Code of Alabama 1975, §§22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.
History: May 5, 1967. **Amended:** June 19, 1967; April 1, 1970; October 16, 1972; September 17, 1973; May 30, 1977; December 19, 1977; February 4, 1981; April 5, 1982; December 11, 1985; March 26, 1986; September 7, 2000; May 27, 2008.

335-6-11-.02 Use Classifications.

(1) **THE ALABAMA RIVER BASIN**

INTERSTATE WATERS

Stream	From	To	Classification
ALABAMA RIVER	MOBILE RIVER	Claiborne Lock and Dam	F&W
ALABAMA RIVER	Claiborne Lock and Dam	Frisco Railroad Crossing	S/F&W
ALABAMA RIVER	Frisco Railroad Crossing	River Mile 131	F&W

Stream	From	To	Classification
Crooked Creek	TALLAPOOSA RIVER	Alabama Highway 9	F&W
Crooked Creek	Alabama Highway 9	Its source	PWS/F&W
Horsetrough Creek	Crooked Creek	Its source	F&W
Wedowee Creek	Little Tallapoosa River	Its source	F&W
Cahulga Creek	TALLAPOOSA RIVER	U. S. Highway 78	F&W
Cahulga Creek	U .S. Highway 78	Its source	PWS/F&W

(12) **THE TENNESSEE RIVER BASIN**

INTERSTATE WATERS

Stream	From	To	Classification
TENNESSEE RIVER Pickwick Lake	Alabama-Tennessee state line	Lower end of Seven Mile Island	PWS/S/F&W
TENNESSEE RIVER Pickwick Lake	Lower end of Seven Mile Island	Sheffield water intake	F&W
TENNESSEE RIVER Pickwick Lake	Sheffield water intake	Wilson Dam	PWS/F&W
TENNESSEE RIVER Wilson Lake	Wilson Dam	Wheeler Dam	PWS/S/F&W
TENNESSEE RIVER Wheeler Lake	Wheeler Dam	Five miles upstream of Elk River (RM 289.3)	PWS/S/F&W
TENNESSEE RIVER Wheeler Lake	Five miles upstream of Elk River (RM 289.3)	U. S. Highway 31 (see Note 1 this basin)	S/F&W
TENNESSEE RIVER Wheeler Lake	U. S. Highway 31	Flint Creek	PWS/S/F&W
TENNESSEE RIVER Wheeler Lake	Flint Creek	Cotaco Creek	S/F&W
TENNESSEE RIVER Wheeler Lake	Cotaco Creek	Indian Creek	PWS/S/F&W

Stream	From	To	Classification
TENNESSEE RIVER Wheeler Lake	Indian Creek	Flint River	PWS/F&W
TENNESSEE RIVER Wheeler Lake	Flint River	Guntersville Dam	S/F&W
TENNESSEE RIVER Guntersville Lake	Guntersville Dam	Upper end of Buck's Island (see Note 2 this basin)	PWS/S/F&W
TENNESSEE RIVER Guntersville Lake	Upper end of Buck's Island	Roseberry Creek	S/F&W
TENNESSEE RIVER Guntersville Lake	Roseberry Creek	Alabama-Tennessee state line (see Note 3 this basin)	PWS/S/F&W
Bear Creek	Alabama-Mississippi state line	Bear Creek Lake Dam	F&W
Bear Creek (Bear Creek Lake)	Bear Creek Lake Dam	Alabama Highway 187	PWS/S/F&W
Bear Creek	Alabama Highway 187	Upper Bear Creek Lake Dam	S/F&W
Bear Creek (Upper Bear Creek Lake)	Upper Bear Creek Lake Dam	Alabama Highway 243	PWS/S/F&W
Bear Creek	Alabama Highway 243	Its source	F&W
Cedar Creek	Bear Creek	Alabama-Mississippi state line	F&W
Cedar Creek	Alabama-Mississippi state line	Cedar Creek Lake Dam	F&W
Cedar Creek (Cedar Creek Lake)	Cedar Creek Lake Dam	Alabama Highway 24	PWS/S/F&W
Cedar Creek	Alabama Highway 24	Its source	F&W
Bear Creek	U. S. Highway 72	Alabama-Mississippi state line	F&W

Stream	From	To	Classification
Spring Creek (Lawrence County)	TENNESSEE RIVER	Its source	F&W
Swan Creek	TENNESSEE RIVER	Highway 24 crossing	F&W
Swan Creek	Highway 24 crossing	Town Creek	A&I
Swan Creek	Town Creek	Its source	F&W
Town Creek (Athens)	Swan Creek	Its source	F&W
Flint Creek	TENNESSEE RIVER	L & N Railroad	F&W
Flint Creek	L & N Railroad	Alabama Highway 36	PWS/F&W
Flint Creek	Alabama Highway 36	Shoal Creek	LWF[4]
Flint Creek	Shoal Creek	Its source	F&W
Shoal Creek	Flint Creek	Its source	F&W
Cotaco Creek	TENNESSEE RIVER	Its source	S/F&W
Mill Pond Creek	Cotaco Creek	Junction with Gilliam Creek	F&W
Gilliam Creek	Mill Pond Creek	Its source	F&W
Bradford Creek	Barren Fork Creek	Its source	F&W
Indian Creek	TENNESSEE RIVER	Its source	F&W
Huntsville Spring Branch	Indian Creek	Its source	F&W
Aldridge Creek	TENNESSEE RIVER	Its source	F&W
Hurricane Creek	Flint River	Its source	F&W
Sand Branch	Hurricane Creek	Its source	F&W
Short Creek	TENNESSEE RIVER	Scarham Creek	PWS/F&W

[4]For the purpose of establishing effluent limitations pursuant to chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 10 years ($7Q_{10}$) shall be the basis for applying the chronic aquatic life criteria.

EPIDEMIOLOGY PAGES

ADPH Home
Epidemiology Home
BCD Home
DETECT Notifiable Disease
TEST Notifiable Disease
REPORT Notifiable Disease
Investigations and Cases
Outbreaks
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Alabama Fish Consumption Advisories

You will need the free Adobe Reader to open and view these documents.

Get Hooked on Health (3 MB)

Fish Advisory Information (1 MB)

Fish Tissue Monitoring Program

Current

Table 1: 2012 Fish Consumption Advisory Guidelines **New!** - Advisories about restrictions on fish consumption from listed bodies of water and the bodies of water for which there are currently no restrictions on fish consumption.

Historical

Fish Consumption Advisories - Advisories about restrictions on fish consumption from listed bodies of water.
Table 2: 2011 | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002

No-Advisory Water Bodies - Fish from these bodies of water can be consumed with no restrictions.
2010 | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002

Alabama Fish Consumption Guidelines						
Current as of August 2012						
				Type Advisory		
Water Body	County	Portion	Species	Women of childbearing age and small children	All other individuals	Contaminant
Aliceville Reservoir NEW	Pickens	Lower reservoir. Deepest point, main river channel, dam forebay.	All species	No restrictions	No restrictions	No level of concern exceeded for chemicals tested
Baker's Creek NEW	Morgan	Baker's Creek embayment at Wheeler Reservoir	All species	No consumption	No consumption	PFOS
Bay Minette Creek NEW	Baldwin	In the vicinity of AL Hwy 225 bridge.	Channel catfish Largemouth bass Striped mullet	No restriction No consumption No restriction	No restriction 1 meal/month No restriction	Mercury
Big Creek Reservoir NEW	Mobile	Lower reservoir. Deepest point, Big Creek channel, dam forebay.	Channel catfish Largemouth bass Yellow bullhead	No restriction No consumption No consumption	No restriction No consumption 1 meal/month	Mercury
Bilbo Creek UPDATED	Washington	Bilbo Creek upstream of the confluence with the Tombigbee River.	Channel Catfish Largemouth bass	No restriction No consumption	No restriction 1 meal/month	Mercury
Blackwater River/Creek UPDATED	Baldwin	Area between mouth of river and powerline crossing southeast of Robertsdale.	Largemouth bass Striped mullet	No consumption No restriction	1 meal/month No restriction	Mercury
Bon Secour Bay NEW	Baldwin	In main channel near confluence of Bon Secour Bay and Oyster Bay	All species	No restriction	No restriction	No level of concern exceeded for chemicals tested
Bon Secour River UPDATED	Baldwin	In the vicinity of Baldwin County Road 10 bridge.	Largemouth bass Striped mullet	No consumption No restriction	No consumption No restriction	Mercury
Chickasaw Creek UPDATED	Mobile	Between I-65 Bridge and Hwy 213 bridge. Includes Chickasabogue Park.	All species	No consumption	No consumption	Mercury
Choccolocco Creek UPDATED	Talladega	Choccolocco Creek at Talladega County Road 399 crossing.	All species	No consumption	No consumption	Mercury, PCBs.

Alabama Fish Consumption Guidelines						
Current as of August 2012						
				Type Advisory		
Water Body	County	Portion	Species	Women of childbearing age and small children	All other individuals	Contaminant
Heron Bay NEW	Mobile	Heron Bay.	All species	No restriction	No restriction	No level of concern exceeded for chemicals tested
Huntsville Spring Branch/ Indian Creek UPDATED	Madison	Deepest point, main creek channel, Indian Creek embayment, 1.0 mile upstream of lake confluence.	All species	No restriction	No restriction	No level of concern exceeded for chemicals tested
Magnolia River NEW	Baldwin	Magnolia River approximately 2.5 miles upstream of Weeks Bay. Area just upstream of Weeks Creek and Magnolia River confluence.	Largemouth bass Striped mullet	No consumption No restriction	No consumption No restriction	Mercury
Middle River NEW	Baldwin	Middle River, 4.5 miles above its confluence with the Tensaw River. T1S, R1E, S15, NE 1/4.	Blue catfish Largemouth bass	No restriction No consumption	No restriction 1 meal/month	Mercury
Mifflin Lake NEW	Baldwin	Mifflin Lake, between the Middle and Tensaw Rivers; T1S, R2E, S19, NW quarter.	Blue catfish Largemouth bass	1 meal/month 1 meal/month	1 meal/week 1 meal/week	Mercury
Mobile Bay UPDATED	Mobile	Little Sand Island area, Mobile River at its confluence with Mobile Bay.	All species	No restriction	No restriction	No level of concern exceeded for chemicals tested
Mobile River UPDATED	Mobile	Mobile River at Cold Creek, river mile 27.0.	Blue catfish Largemouth bass	No restriction No consumption	No restriction 1 meal/month	Mercury
	Mobile	Mobile River at David Lake, river mile 41.3.	Blue catfish Largemouth bass	No restriction No consumption	No restriction 1 meal/month	Mercury
Perdido Bay NEW	Baldwin	Perdido Bay below Lillian Bridge (US Hwy 98) crossing.	All species	No restriction	No restriction	No level of concern exceeded for chemicals tested
Perdido River UPDATED	Baldwin	Perdido River at US Hwy 90.	Blacktail redhorse Largemouth bass	No consumption No consumption	1 meal/month 1 meal/month	Mercury
Polecat Creek UPDATED	Baldwin	Polecat Creek upstream of the confluence with Fish River.	Largemouth bass Spotted sucker	No consumption No consumption	1 meal/month 1 meal/month	Mercury

Alabama Fish Consumption Guidelines						
Current as of August 2012						
				Type Advisory		
Water Body	County	Portion	Species	Women of childbearing age and small children	All other individuals	Contaminant
Tombigbee River UPDATED	Washington	Tombigbee River at river mile 50.0 approximately 5.0 miles upstream of the confluence with the Alabama River.	Channel catfish Largemouth bass	No restriction No consumption	No restriction 1 meal/month	Mercury
	Washington	One (1.0) mile upstream of the Tombigbee/Alabama River confluence.	Blue catfish Largemouth bass	No restriction 1 meal/month	No restriction 1 meal/week	Mercury
	Washington	Vicinity of McIntosh landing, river mile 60.0.	Channel catfish Largemouth bass	No restriction 1 meal/month	No restriction 1 meal/week	Mercury
	Clark	Approximately 9.3 miles downstream of US Hwy 43/ AL Hwy 13 bridge. River miles 85.6-83.6.	All species	No restriction	No restriction	No level of concern exceeded for chemicals tested
Weeks Bay NEW	Baldwin	In main channel, from boat ramp to US Hwy 98 crossing.	All species	No restriction	No restriction	No level of concern exceeded for chemicals tested
Weiss Reservoir UPDATED	Cherokee	Lower reservoir. Deepest point, main river channel, power dam forebay.	All species	1meal/month	1 meal/month	PCBs
	Cherokee	Mid reservoir. Deepest point, main river channel, immediately upstream of causeway at Cedar Bluff	All species	1meal/month	1 meal/month	PCBs
	Cherokee	State line. Deepest point, main river channel, AL/GA state line.	All species	1meal/month	1 meal/month	PCBs
Wolf Bay NEW	Baldwin	North of Mulberry Point.	All species	No restriction	No restriction	No level of concern exceeded for chemicals tested

Trip Name	Station ID	Locale Name	Lat Decimal	Lon Decimal	County	Visit Date	Location Desc
CY2009 FISH TISSUE MONITORING	WHEL-3	Indian Ck	34.58431	-86.72915	Madison County	10/29/2009	Deepest point, main creek channel, Indian Creek embayment, 1 mile upstream of lake confluence.
CY2009 FISH TISSUE MONITORING	WHEL-3	Indian Ck	34.58431	-86.72915	Madison County	11/4/2009	Deepest point, main creek channel, Indian Creek embayment, 1 mile upstream of lake confluence.
CY2010 FISH TISSUE MONITORING	WHEL-3	Indian Ck	34.58431	-86.72915	Madison County	10/27/2010	Deepest point, main creek channel, Indian Creek embayment, 1 mile upstream of lake confluence.
CY2011 FISH TISSUE MONITORING	WHEL-3	Indian Ck	34.58431	-86.72915	Madison County	11/7/2011	Deepest point, main creek channel, Indian Creek embayment, 1 mile upstream of lake confluence.

Station	Visit Date	Species	Comp / Indiv	Fish#	Characteristic Name	Value	dc	Detect Limit	Bottle Code
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	2,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	2,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	2,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	2,4'-DDD ug/g	0.025	---	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	2,4'-DDD ug/g	.06	---	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	2,4'-DDD ug/g	.022	---	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	2,4'-DDD ug/g	.029	---	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	2,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	2,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	2,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	2,4'-DDE ug/g	.031	---	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	2,4'-DDE ug/g	.033	---	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	2,4'-DDE ug/g	.025	---	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	2,4'-DDE ug/g	.015	---	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	4,4'-DDD ug/g	.014	---	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	4,4'-DDD ug/g	.013	---	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	4,4'-DDD ug/g	.018	---	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	4,4'-DDD ug/g	.179	---	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	4,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	4,4'-DDD ug/g	.13	---	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	4,4'-DDD ug/g	.078	---	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	4,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	4,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	4,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	4,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	4,4'-DDE ug/g	0.29	---	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	4,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	4,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	4,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	4,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	4,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	4,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	4,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	4,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	4,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	AROCHLOR 1016 ug/g	0.219	---	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	AROCHLOR 1221 ug/g	< .05	<	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	AROCHLOR 1232 ug/g	< .05	<	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	AROCHLOR 1242 ug/g	< .05	<	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	AROCHLOR 1248 ug/g	< .05	<	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	AROCHLOR 1254 ug/g	< .05	<	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	AROCHLOR 1260 ug/g	0.17	---	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	ARSENIC, TOTAL ug/g	< 1	<	1.00	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	CADMIUM, TOTAL ug/g	< .5	<	0.50	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	CHLORDANE, TOTAL ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	CHLORPYRIFOS ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01

WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3		<	.01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	HEPTACHLOR ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	HEPTACHLOR ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	HEPTACHLOR ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	HEPTACHLOR ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	HEPTACHLOR ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	HEPTACHLOR ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	HEPTACHLOR ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	LINDANE ug/g	<	.01	<	0.01	10292009 WHEL-3 CHC 01

WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	LIPIDS %	1.3	---	0.10	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	LIPIDS %	.4	---	0.10	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	LIPIDS %	2.6	---	0.10	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	LIPIDS %	.74	---	0.10	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	LIPIDS %	2.36	---	0.10	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	LIPIDS %	1.45	---	0.10	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	LIPIDS %	1.08	---	0.10	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	MERCURY, TOTAL ug/g	< .1	<	0.10	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 1	1	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01
WHEL-3	10-29-09	Channel Catfish	Indiv 2	2	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 02
WHEL-3	10-29-09	Channel Catfish	Indiv 3	3	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 03
WHEL-3	10-29-09	Channel Catfish	Indiv 4	4	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 04
WHEL-3	10-29-09	Channel Catfish	Indiv 5	5	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 05
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Indiv 6	6	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 CHC 06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	PCB'S, TOTAL ug/g	.389	---	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	SELENIUM, TOTAL ug/g	< 1	<	1.00	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Channel Catfish	Composite of 6	6	TOXAPHENE ug/g	< .05	<	0.05	10292009 WHEL-3 CHC 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	2,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	2,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	2,4'-DDD ug/g	.028	---	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	2,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	2,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	2,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	2,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	2,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	2,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	2,4'-DDE ug/g	.025	---	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	2,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	2,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	2,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	2,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	2,4'-DDT ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	4,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	4,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	4,4'-DDD ug/g	.329	---	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	4,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	4,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	4,4'-DDD ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	4,4'-DDD ug/g	.016	---	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	4,4'-DDE ug/g	.059	---	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	4,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	4,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	4,4'-DDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 04

WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	4,4'-DDE ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	4,4'-DDE ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	4,4'-DDE ug/g		.046	=	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	4,4'-DDT ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	4,4'-DDT ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	4,4'-DDT ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	4,4'-DDT ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	4,4'-DDT ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	4,4'-DDT ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	4,4'-DDT ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	AROCHLOR 1016 ug/g	<	.05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	AROCHLOR 1221 ug/g	<	.05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	AROCHLOR 1232 ug/g	<	.05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	AROCHLOR 1242 ug/g	<	.05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	AROCHLOR 1248 ug/g	<	.05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	AROCHLOR 1254 ug/g	<	.05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	AROCHLOR 1260 ug/g	<	.05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	ARSENIC, TOTAL ug/g	<	1	<	1.00	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	CADMIUM, TOTAL ug/g	<	.5	<	0.50	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	CHLORDANE, TOTAL ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	CHLORPYRIFOS ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	DIELDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	ENDOSULFAN I ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	ENDOSULFAN II ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	ENDRIN ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	HEPTACHLOR ug/g	<	.01	<	0.01	10292009 WHEL-3 LMB 01

WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	HEPTACHLOR ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	HEPTACHLOR ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	HEPTACHLOR ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	HEPTACHLOR ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	HEPTACHLOR ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	HEPTACHLOR ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	HEPTACHLOR EPOXIDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	HEPTACHLOR EPOXIDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	HEPTACHLOR EPOXIDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	HEPTACHLOR EPOXIDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	HEPTACHLOR EPOXIDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	HEPTACHLOR EPOXIDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	HEPTACHLOR EPOXIDE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	HEXACHLOROBENZENE ug/g	< .05	<	0.05	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	HEXACHLOROBENZENE ug/g	< .05	<	0.05	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	HEXACHLOROBENZENE ug/g	< .05	<	0.05	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	HEXACHLOROBENZENE ug/g	< .05	<	0.05	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	HEXACHLOROBENZENE ug/g	< .05	<	0.05	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	HEXACHLOROBENZENE ug/g	< .05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	HEXACHLOROBENZENE ug/g	< .05	<	0.05	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	LINDANE ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	LIPIDS %	1.25	---	0.10	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	LIPIDS %	.19	---	0.10	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	LIPIDS %	.87	---	0.10	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	LIPIDS %	.35	---	0.10	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	LIPIDS %	.4	---	0.10	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	LIPIDS %	.35	---	0.10	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	LIPIDS %	.29	---	0.10	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	MERCURY, TOTAL ug/g	.252	---	0.10	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Indiv 1	1	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01
WHEL-3	10-29-09	Largemouth Bass	Indiv 2	2	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 02
WHEL-3	10-29-09	Largemouth Bass	Indiv 3	3	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 03
WHEL-3	10-29-09	Largemouth Bass	Indiv 4	4	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 04
WHEL-3	10-29-09	Largemouth Bass	Indiv 5	5	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 05
WHEL-3	10-29-09	Largemouth Bass	Indiv 6	6	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	MIREX ug/g	< .01	<	0.01	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	PCB'S, TOTAL ug/g	< .05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	SELENIUM, TOTAL ug/g	< 1	<	1.00	10292009 WHEL-3 LMB 01-06
WHEL-3	10-29-09	Largemouth Bass	Composite of 6	6	TOXAPHENE ug/g	< .05	<	0.05	10292009 WHEL-3 LMB 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	2,4'-DDD ug/g	.012	---	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	2,4'-DDD ug/g	.074	---	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	2,4'-DDD ug/g	.054	---	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	2,4'-DDD ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	2,4'-DDD ug/g	.011	---	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	2,4'-DDD ug/g	.043	---	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	2,4'-DDD ug/g	.019	---	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	2,4'-DDE ug/g	.021	---	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	2,4'-DDE ug/g	.096	---	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	2,4'-DDE ug/g	.06	---	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	2,4'-DDE ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04

WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	2,4'-DDE ug/g	.026	—	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	2,4'-DDE ug/g	.018	—	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	2,4'-DDE ug/g	.05	—	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	2,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	2,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	2,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	2,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	2,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	2,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	2,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	4,4'-DDD ug/g	.072	—	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	4,4'-DDD ug/g	.343	—	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	4,4'-DDD ug/g	.306	—	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	4,4'-DDD ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	4,4'-DDD ug/g	.051	—	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	4,4'-DDD ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	4,4'-DDD ug/g	.08	—	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	4,4'-DDE ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	4,4'-DDE ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	4,4'-DDE ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	4,4'-DDE ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	4,4'-DDE ug/g	.318	—	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	4,4'-DDE ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	4,4'-DDE ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	4,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	4,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	4,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	4,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	4,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	4,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	4,4'-DDT ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	AROCHLOR 1016 ug/g	.125	—	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	AROCHLOR 1221 ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	AROCHLOR 1232 ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	AROCHLOR 1242 ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	AROCHLOR 1248 ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	AROCHLOR 1254 ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	AROCHLOR 1260 ug/g	.145	—	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	ARSENIC, TOTAL ug/g	< 1	<	1.00	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	CADMIUM, TOTAL ug/g	< .5	<	0.50	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	CHLORDANE, TOTAL ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	CHLORPYRIFOS ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	CHLORPYRIFOS ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	CHLORPYRIFOS ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	CHLORPYRIFOS ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	CHLORPYRIFOS ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	CHLORPYRIFOS ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	CHLORPYRIFOS ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	DIELDRIN ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	DIELDRIN ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	DIELDRIN ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	DIELDRIN ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	DIELDRIN ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	DIELDRIN ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	DIELDRIN ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	ENDOSULFAN I ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01

WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	ENDOSULFAN I	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	ENDOSULFAN I	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	ENDOSULFAN I	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	ENDOSULFAN I	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	ENDOSULFAN I	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	ENDOSULFAN I	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	ENDOSULFAN II	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	ENDOSULFAN II	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	ENDOSULFAN II	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	ENDOSULFAN II	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	ENDOSULFAN II	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	ENDOSULFAN II	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	ENDOSULFAN II	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	ENDRIN	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	ENDRIN	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	ENDRIN	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	ENDRIN	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	ENDRIN	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	ENDRIN	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	ENDRIN	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	HEPTACHLOR	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	HEPTACHLOR	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	HEPTACHLOR	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	HEPTACHLOR	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	HEPTACHLOR	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	HEPTACHLOR	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	HEPTACHLOR	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	HEPTACHLOR EPOXIDE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	HEPTACHLOR EPOXIDE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	HEPTACHLOR EPOXIDE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	HEPTACHLOR EPOXIDE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	HEPTACHLOR EPOXIDE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	HEPTACHLOR EPOXIDE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	HEPTACHLOR EPOXIDE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	HEXACHLOROBENZENE	ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	HEXACHLOROBENZENE	ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	HEXACHLOROBENZENE	ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	HEXACHLOROBENZENE	ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	HEXACHLOROBENZENE	ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	HEXACHLOROBENZENE	ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	HEXACHLOROBENZENE	ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	LINDANE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	LINDANE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	LINDANE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	LINDANE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	LINDANE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	LINDANE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	LINDANE	ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	LIPIDS	%	.47	---	0.10	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	LIPIDS	%	1.69	---	0.10	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	LIPIDS	%	1.56	---	0.10	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	LIPIDS	%	2.79	---	0.10	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	LIPIDS	%	.66	---	0.10	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	LIPIDS	%	2.59	---	0.10	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	LIPIDS	%	8.83	---	0.10	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	MERCURY, TOTAL	ug/g	.128	---	0.10	11042009 WHEL-3 SBF 01-06

WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 1	1	MIREX ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 2	2	MIREX ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 02
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 3	3	MIREX ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 03
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 4	4	MIREX ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 04
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 5	5	MIREX ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 05
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	MIREX ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Indiv 6	6	MIREX ug/g	< .01	<	0.01	11042009 WHEL-3 SBF 06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	PCB'S, TOTAL ug/g	.27	---	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	SELENIUM, TOTAL ug/g	< 1	<	1.00	11042009 WHEL-3 SBF 01-06
WHEL-3	11-04-09	Smallmouth Buffalo	Composite of 6	6	TOXAPHENE ug/g	< .05	<	0.05	11042009 WHEL-3 SBF 01-06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	2,4'-DDD ug/g	.015	---	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	2,4'-DDD ug/g	.091	---	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	2,4'-DDD ug/g	.054	---	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	2,4'-DDD ug/g	.024	---	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	2,4'-DDD ug/g	.924	---	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	2,4'-DDD ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	2,4'-DDE ug/g	1.8	---	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	2,4'-DDE ug/g	3.93	---	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	2,4'-DDE ug/g	2.256	---	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	2,4'-DDE ug/g	1.106	---	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	2,4'-DDE ug/g	2.767	---	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	2,4'-DDE ug/g	.434	---	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	2,4'-DDT ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	2,4'-DDT ug/g	.032	---	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	2,4'-DDT ug/g	.817	---	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	2,4'-DDT ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	2,4'-DDT ug/g	.013	---	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	2,4'-DDT ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	4,4'-DDD ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	4,4'-DDD ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	4,4'-DDD ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	4,4'-DDD ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	4,4'-DDD ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	4,4'-DDD ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	4,4'-DDE ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	4,4'-DDE ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	4,4'-DDE ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	4,4'-DDE ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	4,4'-DDE ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	4,4'-DDE ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	4,4'-DDT ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	4,4'-DDT ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	4,4'-DDT ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	4,4'-DDT ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	4,4'-DDT ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	4,4'-DDT ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	CHLORPYRIFOS ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	CHLORPYRIFOS ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	CHLORPYRIFOS ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	CHLORPYRIFOS ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	CHLORPYRIFOS ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	CHLORPYRIFOS ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	DIELDRIN ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	DIELDRIN ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	DIELDRIN ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	DIELDRIN ug/g	< .01	<	0.01	10272010 WHEL-3 SBF 04

WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	DIELDRIN ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	DIELDRIN ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	ENDOSULFAN I ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	ENDOSULFAN I ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	ENDOSULFAN I ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	ENDOSULFAN I ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	ENDOSULFAN I ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	ENDOSULFAN I ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	ENDOSULFAN II ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	ENDOSULFAN II ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	ENDOSULFAN II ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	ENDOSULFAN II ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	ENDOSULFAN II ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	ENDOSULFAN II ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	ENDRIN ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	ENDRIN ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	ENDRIN ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	ENDRIN ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	ENDRIN ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	ENDRIN ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	HEPTACHLOR ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	HEPTACHLOR ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	HEPTACHLOR ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	HEPTACHLOR ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	HEPTACHLOR ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	HEPTACHLOR ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	LINDANE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	LINDANE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	LINDANE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	LINDANE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	LINDANE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	LINDANE ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	LIPIDS %		9.47	---	0.10	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	LIPIDS %		8.16	---	0.10	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	LIPIDS %		5.04	---	0.10	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	LIPIDS %		1.7	---	0.10	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	LIPIDS %		2.55	---	0.10	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	LIPIDS %		4.84	---	0.10	10272010 WHEL-3 SBF 06
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 1	1	MIREX ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 01
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 2	2	MIREX ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 02
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 3	3	MIREX ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 03
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 4	4	MIREX ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 04
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 5	5	MIREX ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 05
WHEL-3	10-27-10	Smallmouth Buffalo	Indiv 6	6	MIREX ug/g	<	.01	<	0.01	10272010 WHEL-3 SBF 06

WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	2,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	2,4'-DDE ug/g	.081	—	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	2,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	4,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	4,4'-DDE ug/g	.074	—	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	4,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	CHLORPYRIFOS ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	DIELDRIN ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	ENDOSULFAN I ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	ENDOSULFAN II ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	ENDRIN ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	HEPTACHLOR ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	HEPTACHLOR EPOXIDE ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	HEXACHLOROBENZENE ug/g	< .05	<	0.05	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	LINDANE ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	LIPIDS %	1.63	—	0.10	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Bigmouth Buffalo	Indiv 1	1	MIREX ug/g	< .01	<	0.01	11072011 WHEL-3 BBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	2,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	2,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	2,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	2,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	2,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	2,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	2,4'-DDE ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	2,4'-DDE ug/g	.108	—	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	2,4'-DDE ug/g	.015	—	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	2,4'-DDE ug/g	.016	—	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	2,4'-DDE ug/g	.0023	—	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	2,4'-DDE ug/g	.104	—	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	2,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	2,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	2,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	2,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	2,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	2,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	4,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	4,4'-DDD ug/g	.051	—	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	4,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	4,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	4,4'-DDD ug/g	.021	—	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	4,4'-DDD ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	4,4'-DDE ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	4,4'-DDE ug/g	.085	—	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	4,4'-DDE ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	4,4'-DDE ug/g	.015	—	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	4,4'-DDE ug/g	.023	—	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	4,4'-DDE ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	4,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	4,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	4,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	4,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	4,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	4,4'-DDT ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	CHLORPYRIFOS ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	CHLORPYRIFOS ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	CHLORPYRIFOS ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 03

WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	CHLORPYRIFOS ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	CHLORPYRIFOS ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	CHLORPYRIFOS ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	DIELDRIN ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	DIELDRIN ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	DIELDRIN ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	DIELDRIN ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	DIELDRIN ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	DIELDRIN ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	ENDOSULFAN I ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	ENDOSULFAN I ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	ENDOSULFAN I ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	ENDOSULFAN I ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	ENDOSULFAN I ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	ENDOSULFAN I ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	ENDOSULFAN II ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	ENDOSULFAN II ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	ENDOSULFAN II ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	ENDOSULFAN II ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	ENDOSULFAN II ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	ENDOSULFAN II ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	ENDRIN ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 01
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WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	HEPTACHLOR ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	HEPTACHLOR ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 02
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WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	HEPTACHLOR ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	HEPTACHLOR ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	HEPTACHLOR EPOXIDE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	HEXACHLOROBENZENE ug/g	<	.05	<	0.05	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	LINDANE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	LINDANE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	LINDANE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	LINDANE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	LINDANE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 05
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	LINDANE ug/g	<	.01	<	0.01	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	LIPIDS %		1.38	--	0.10	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	LIPIDS %		.68	--	0.10	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	LIPIDS %		4.12	--	0.10	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	LIPIDS %		1.77	--	0.10	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	LIPIDS %		3.89	--	0.10	11072011 WHEL-3 SBF 05

WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 6	6	LIPIDS %	2.51	---	0.10	11072011 WHEL-3 SBF 06
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 1	1	MIREX ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 01
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 2	2	MIREX ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 02
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 3	3	MIREX ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 03
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 4	4	MIREX ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 04
WHEL-3	11-07-11	Smallmouth Buffalo	Indiv 5	5	MIREX ug/g	< .01	<	0.01	11072011 WHEL-3 SBF 05
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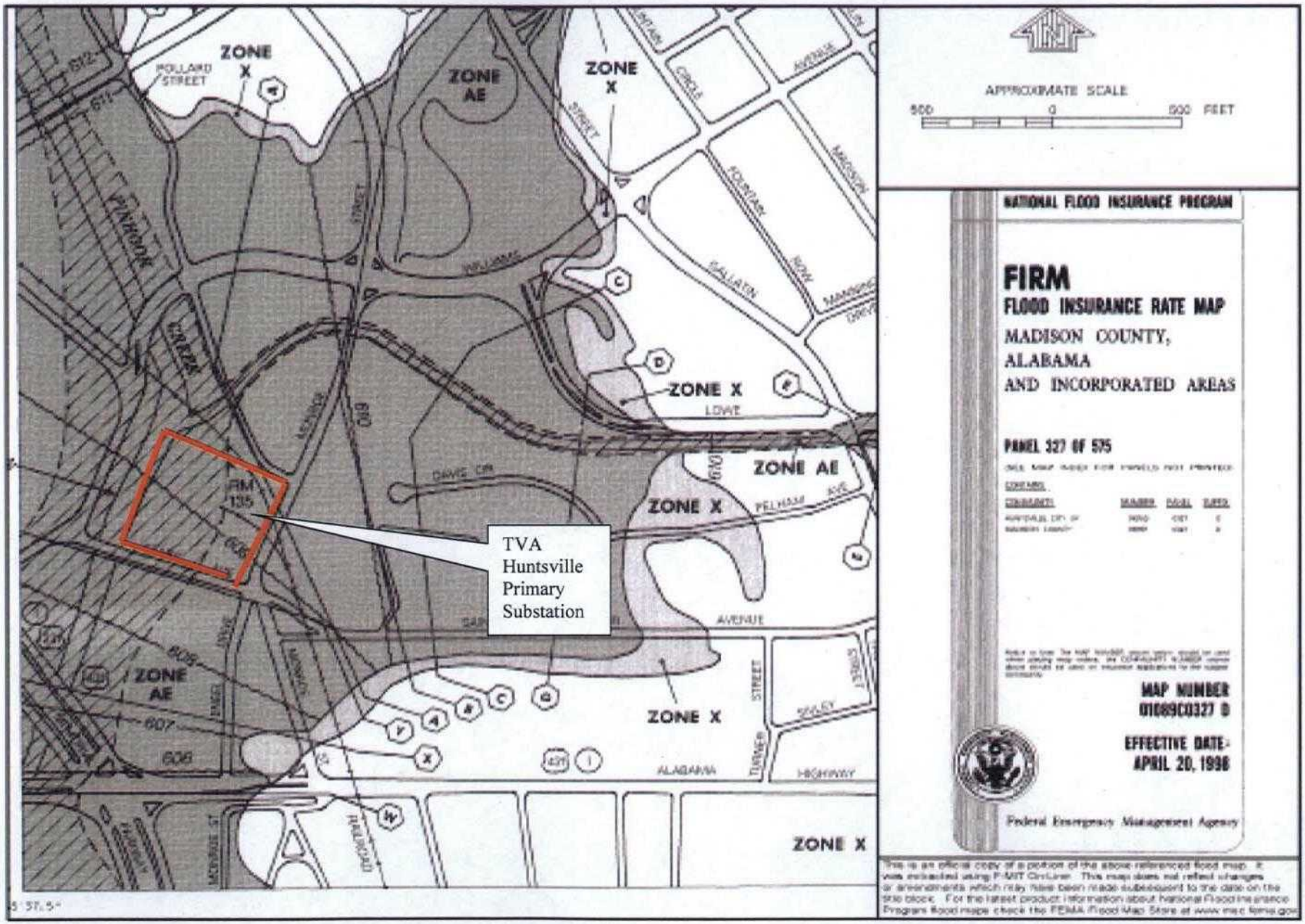
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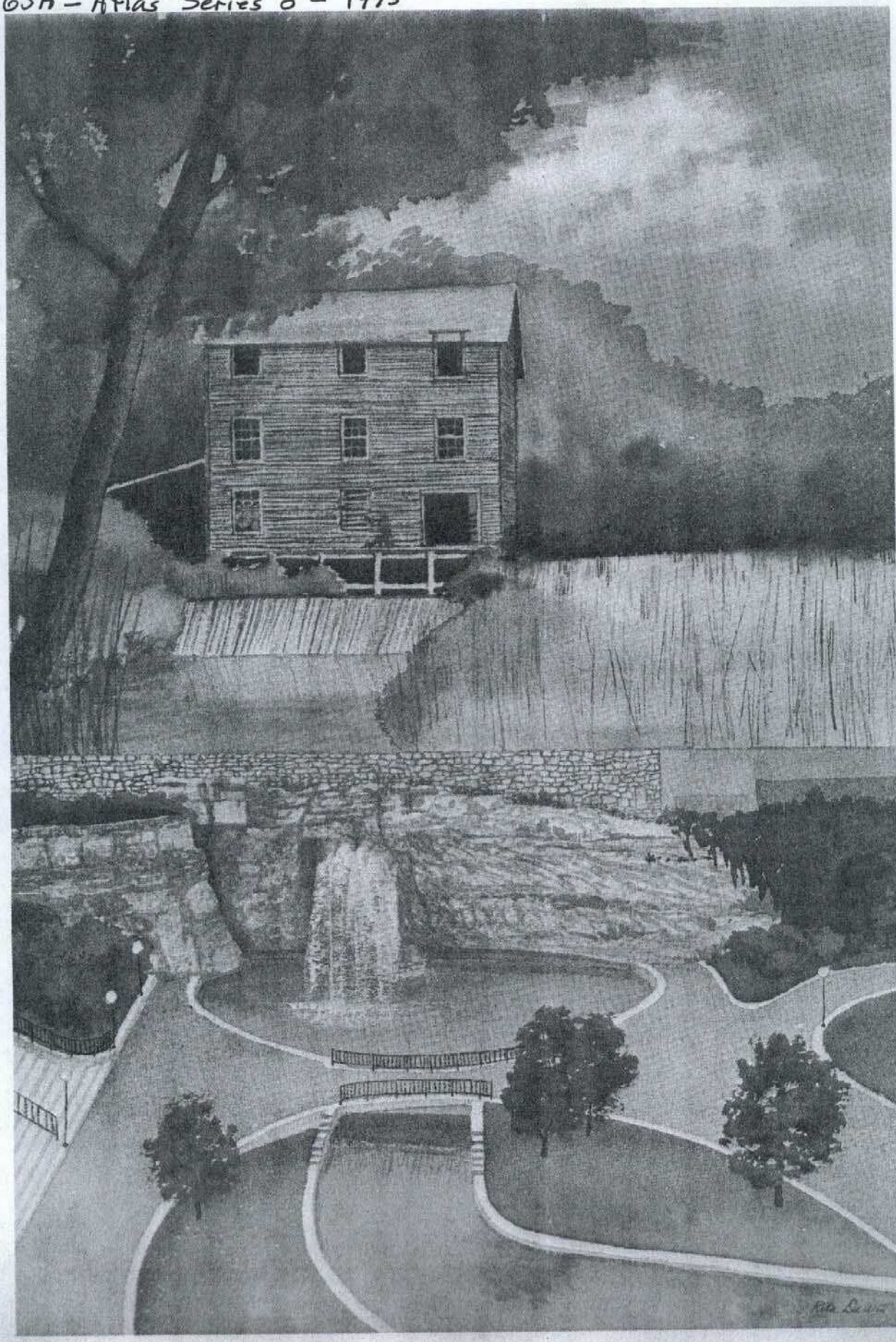

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ENVIRONMENTAL GEOLOGY AND HYDROLOGY HUNTSVILLE AND MADISON COUNTY, ALABAMA

This atlas is a publication of the
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Base maps are adapted from the 1:24,000 and 1:250,000 scale maps of the Tennessee Valley Valley Authority published by the Topographic Division of the U.S. Geological Survey.

Most county-wide maps in this atlas were prepared at the scale of the detailed topographic maps covering the county—one inch to 2000 feet (1:24,000).

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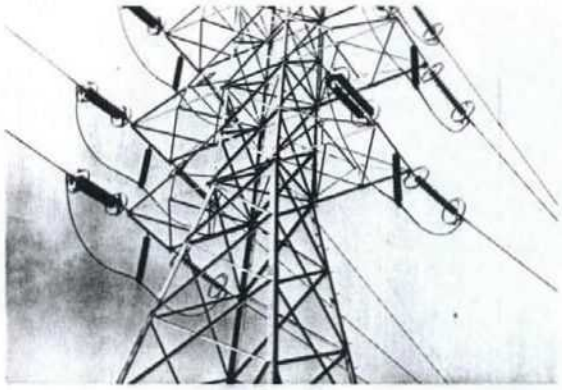
85 (top right) J. Ellis; (left) W. W. Varnedoe; (bottom right) P. H. Moser
87 (top) F. L. Doyle; (center) J. Ellis
90 P. H. Moser
94 (top) P. H. Moser; (center top) P. H. Moser; (center bottom) P. H. Moser; (bottom) F. L. Doyle
96 P. H. Moser
98 (bottom) P. H. Moser
108 (top) F. L. Doyle; (center bottom) P. H. Moser; (bottom) F. L. Doyle
111 Tennessee Valley Authority

ELECTRIC POWER

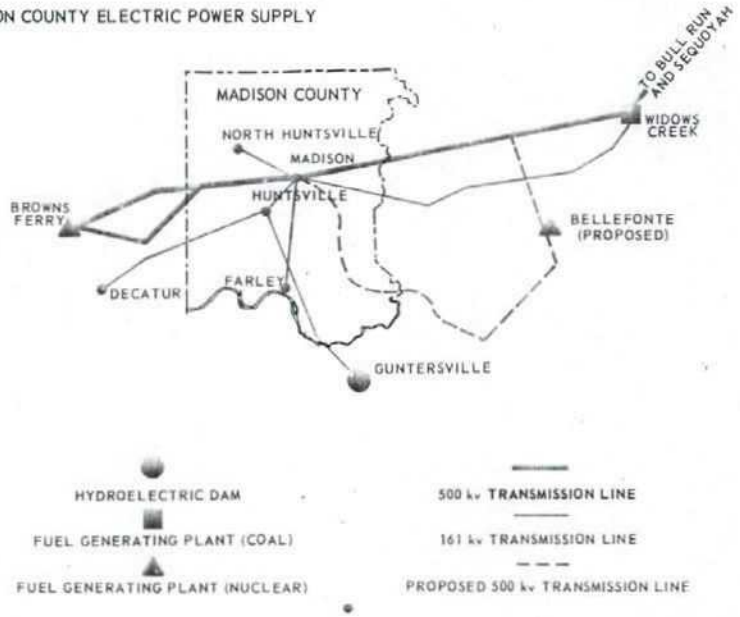
Electricity is the major source of energy in Madison County. The electric power used in Madison County is generated by the Tennessee Valley Authority (TVA) using fossil fuels, hydropower, and nuclear power.

The TVA, established in 1933, has aided the growth of the Madison County area. A system of multipurpose TVA dams furnish flood control, water supply, and navigable waterways as well as hydroelectric power to Madison County and the rest of the Tennessee Valley. The growth of the region brought about by development of the Tennessee River and its tributaries initiated a need for more electric power than the hydroelectric generators are capable of producing. In order to meet the growing demand, fossil fuel and nuclear powered generating plants have been added to make the TVA the largest producer of electric power in the United States.

At the end of 1973 the TVA system had a total installed generating capacity of about 24 billion watts. This included 50 hydroelectric plants, 12 coal-fired steam plants, 28 gas turbine generating units, and one partly completed nuclear-power steam plant. Future plans include the addition of four more nuclear power plants and one pumped storage generating facility to bring the total generating capacity of the TVA to over 36 billion watts by 1982.



MADISON COUNTY ELECTRIC POWER SUPPLY



Map by R. L. Lipp from Tennessee Valley Authority Sources

The TVA supplies power to Huntsville Utilities through 161 kv transmission lines from Decatur, Guntersville, and Widows Creek; and 500 kv transmission lines from Browns Ferry and Widows Creek. The TVA also provides service to the Redstone Arsenal directly from tap lines from the Decatur-Huntsville and Madison-Farley transmission lines.

While Madison County draws power from all the TVA generating facilities, the primary sources of electric power consumed in Madison County are generated at Guntersville, Browns Ferry, and Widows Creek. These three facilities had a total generating capacity of about 3,140 million watts as of December 1973. Of this total, Guntersville hydroelectric plant contributed 97 million watts, the Widows Creek coal-fired steam plant added 1,977 million watts, and the Browns Ferry nuclear-power steam plant contributed 1,065 million watts. The power output of the Browns Ferry plant is for only one of the three planned generating units. With completion of the remaining two reactors in late 1974, the power available from the plant will be increased to 3,195 million watts and the total capacity of all three plants will reach 5,270 million watts.

The proposed Bellefonte nuclear plant to be located on Guntersville Lake would add 2,400 million watts of power to the available supply of Madison County (19). This plant is expected to be in operation in 1980, and being tied directly to the Madison substation by 500 kv transmission lines, will also be a primary source of electric power.

It should be noted that the reliable supply of electric power to the Madison County area is not dependent on operation of any one of the aforementioned generating facilities. The 500 kv lines east from the Madison substation connects not only with the Widows Creek plant, but also with the Bull Run, Tennessee, coal-fired steam plant and the Sequoyah, Tennessee, nuclear power plant now under construction.

s in developing

lined with concrete
reater storm runoff.

re of the risk involved from flooding.

ain are wooded areas and the growing of
casional flooding with minimum damage.

Floods

Floods are a natural characteristic of streams. They become a hazard to the inhabitants of the county only when the people compete with streams for use of the flood plains—the relatively level areas along streams. Generally there is competition because flood plains provide level construction sites and fertile agricultural land. However, man should be aware of the possible damage from floods when the flood plains are utilized. The nature and degree of occupancy should be compatible with the risk involved and the degree of protection that it is practicable to provide.

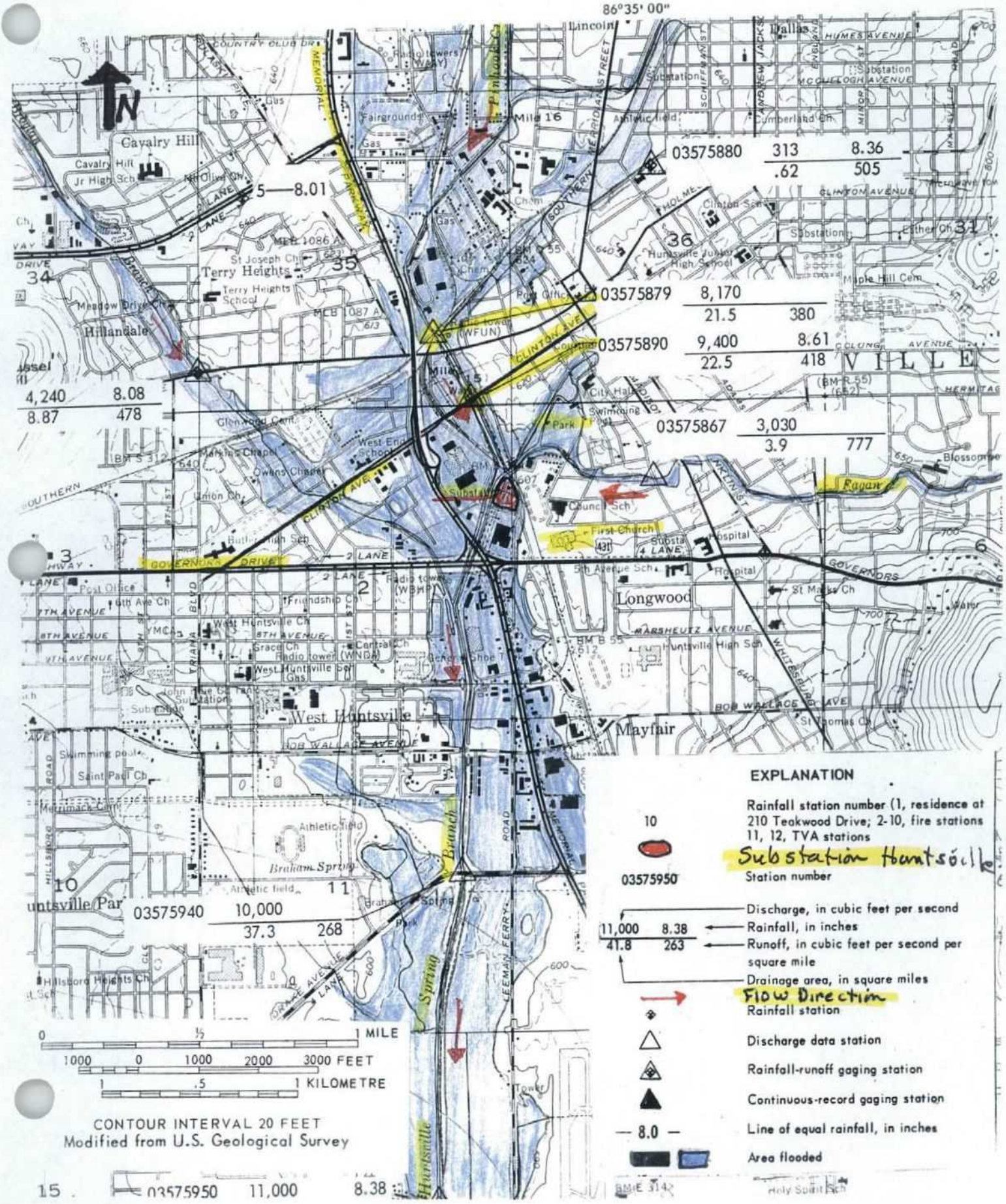
To help meet the need for defining the risk and minimizing flood losses in Madison County, approximate boundaries of areas inundated by the 100-year flood are shown on the map. Flood-prone areas have been identified on the main streams throughout the county; these include some small streams in the vicinity of Huntsville, New Hope, and Owens Cross Roads. Although not delineated on the map, areas subject to flooding do exist along streams outside the flood-prone areas shown.

Land inundated by the 100-year flood has, on the average, one chance in 100 of being flooded any year. Therefore, floods of equal or greater magnitude than the 100-year flood can occur more than one time in a given 100-year period. This has been experienced on Flint River. Since 1929 or during the past 45 years, streamflow records collected at gaging station 03575000 Flint River near Chase, located northeast of Huntsville, show that floods greater than the 100-year flood occurred in 1963 and 1973.

Solutions to flood problems are classed into two broad categories—structural and nonstructural. Structural solutions include floodwater impoundments, levees, floodways, and channel improvements; nonstructural solutions consist mainly of flood-plain regulation. All these solutions are applicable in reducing flood losses in the county. The larger impoundment areas shown in illustration "Surface Water

FLOOD OF MARCH 1973 IN HUNTSVILLE, ALABAMA

GSA - ATLAS SERIES 8 - 1975 (page 55)



03575950 11,000 8.38

REFERENCE 18

Alabama Ecological Services Field Office

Southeast Region

Alabama's Federally Listed Species

Alabama map. Credit: USFWS

By County - April, 2011

The Alabama County Species lists will now be maintained through our ECOS website. We will still provide critical habitat lists on this page but you will not need to click on the county name to access the county list through ECOS. We are continually updating this list and, therefore, it may be incomplete and is provided strictly for informational purposes. This list does not constitute any form of Section 7 consultation. We recommend that you contact our office (Daphne, AL Field Office - USFWS) for more current, site specific information prior to project activities. To be certain of occurrence, surveys should be conducted by qualified biologists to determine if a Federally protected species occurs within a project area. Locations of designated critical habitat have also been included for your information. You can also take a look at our critical habitat web portal, featuring CH maps across the country.

Alabama Counties: Autauga / Baldwin / Barbour / Bibb / Blount / Bullock / Butler / Calhoun / Chambers / Cherokee / Chilton / Choctaw / Clarke / Clay / Cleburne / Coffee / Colbert / Conecuh / Coosa / Covington / Crenshaw / Cullman / Dale / Dallas / DeKalb / Elmore / Escambia / Etowah / Fayette / Franklin / Geneva / Greene / Hale / Henry / Houston / Jackson / Jefferson / Lamar / Lauderdale / Lawrence / Lee / Limestone / Lowndes / Macon / Madison / Marengo / Marion / Marshall / Mobile / Monroe / Montgomery / Morgan / Perry / Pickens / Pike / Randolph / Russell / Shelby / St. Clair / Sumter / Talladega / Tallapoosa / Tuscaloosa / Walker / Washington / Wilcox / Winston

>>>>>>>>>>Click on county name below for species list<<<<<<<<<<

Notes:

- Bald eagles *Haliaeetus leucocephalus* and red-cockaded woodpeckers *Picoides borealis* may occur in any county, if suitable habitat exists. For further information and guidelines on bald eagle protocol, go to: http://www.fws.gov/southeast/es/baldeagle/

Please send comments, questions, or corrections to dan_everson@fws.gov

Last updated: February 24, 2012

Species Reports

Environmental Conservation Online System

Species By County Report

The following report contains Species that are known to or are believed to occur in this county. Species with range unrefined past the state level are now excluded this report. If you are looking for the Section 7 range (for Section 7 Consultations), please visit the **IPaC** application.

County: Madison, AL

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Action Status	Recovery Plan Sta
Clams	**Alabama lampmussel (*Lampsilis virescens*)**	Entire Range; Except where listed as Experimental Populations	Endangered	Alabama Ecological Services Field Office	**Alabama Lamp Pearly Mussel**	**View Implementation Progress**	Final
	Pink mucket (pearlymussel) (*Lampsilis abrupta*)		Endangered	Asheville Ecological Services Field Office	**Pink Mucket Pearly Mussel**	**View Implementation Progress**	Final
	Finerayed pigtoe (*Fusconaia cuneolus*)	Entire Range; Except where listed as Experimental Populations	Endangered	Asheville Ecological Services Field Office	**Fine-Rayed Pigtoe Pearly Mussel**	**View Implementation Progress**	Final
	Rough pigtoe (*Pleurobema plenum*)		Endangered	Kentucky Ecological Services Field Office	**Rough Pigtoe Pearly Mussel**	**View Implementation Progress**	Final

	Shiny pigtoe (*Fusconaia cor*)	Entire Range; Except where listed as Experimental Populations	Endangered	Asheville Ecological Services Field Office	**Shiny Pigtoe Pearly Mussel**	**View Implementation Progress**	Final
	Spectaclecase (mussel) (*Cumberlandia monodonta*)		Proposed Endangered	Twin Cities Ecological Services Field Office	-	-	-
	Slabside pearlymussel (*Lexingtonia dolabelloides*)		Candidate	Asheville Ecological Services Field Office	-	-	-
	Snuffbox mussel (*Epioblasma triquetra*)		Proposed Endangered	Columbus Ecological Services Field Office	-	-	-
	Rabbitsfoot (*Quadrula cylindrica cylindrica*)		Candidate	Arkansas Ecological Services Field Office	-	-	-
	Sheepnose Mussel (*Plethobasus cyphyus*)		Proposed Endangered	Rock Island Ecological Services Field Office	-	-	-
Crustaceans	**Alabama cave shrimp (*Palaemonias alabamae*)**		Endangered	Alabama Ecological Services Field Office	**Alabama Cave Shrimp Recovery Plan**	**View Implementation Progress**	Final
Fishes	**Snail darter (*Percina tanasi*)**		Threatened	Tennessee Ecological Services Field Office	**Snail Darter**	**View Implementation Progress**	Final
				Asheville			

	Spotfin Chub (*Erimonax monachus*)	Entire	Threatened	Asheville Ecological Services Field Office	**Spotfin Chub**	**View Implementation Progress**	Final
	Slackwater darter (*Etheostoma boschungi*)		Threatened	Mississippi Ecological Services Field Office	**Slackwater Darter**	**View Implementation Progress**	Final
Flowering Plants	**Price's potato-bean (*Apios priceana*)**		Threatened	Tennessee Ecological Services Field Office	**Price's Potato Bean**	**View Implementation Progress**	Final
	Morefield's leather flower (*Clematis morefieldii*)		Endangered	Tennessee Ecological Services Field Office	**Morefield's Leather-flower**	**View Implementation Progress**	Final
Mammals	**Indiana bat (*Myotis sodalis*)**		Endangered	Bloomington Ecological Services Field Office	**Indiana Bat (Myotis sodalis) Draft Recovery Plan: First Revision**	**View Implementation Progress**	Draft Revision 1
	Gray bat (*Myotis grisescens*)		Endangered	Columbia Ecological Services Field Office	**Gray Bat**	**View Implementation Progress**	Final
Snails	**Armored snail (*Pyrgulopsis (=Marstonia) pachyta*)**		Endangered	Alabama Ecological Services Field Office	**Technical Draft Recovery Plan for the Armored Snail**	Recovery efforts in progress, but no implementation information yet to display.	Draft
	Slender campeloma (*Campeloma decampi*)		Endangered	Alabama Ecological Services Field Office	-	-	-

Export options: **CSV** | **EXCEL** | **XML** | **PDF**

Last updated: December 6, 2011

ECOS Home | Contact Us

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Stage
Clams	Alabama lampmussel (Lampsilis	Entire Range; Except where	Endangered	Alabama Ecological Services	Alabama Lamp Pearly Mussel	Final
Clams	Pink mucket (pearlymussel)		Endangered	Asheville Ecological Services	Pink Mucket Pearly Mussel	Final
Clams	Finerayed pigtoe (Fusconaia	Entire Range; Except where	Endangered	Asheville Ecological Services	Fine-Rayed Pigtoe Pearly	Final
Clams	Rough pigtoe (Pleurobema		Endangered	Kentucky Ecological Services	Rough Pigtoe Pearly Mussel	Final
Clams	Shiny pigtoe (Fusconaia cor)	Entire Range; Except where	Endangered	Asheville Ecological Services	Shiny Pigtoe Pearly Mussel	Final
Clams	Spectaclecase (mussel)		Proposed Endangered	Twin Cities Ecological Services		
Clams	Slabside pearlymussel		Candidate	Asheville Ecological Services		
Clams	Snuffbox mussel (Epioblasma		Proposed Endangered	Columbus Ecological Services		
Clams	Rabbitsfoot (Quadrula cylindrica		Candidate	Arkansas Ecological Services		
Clams	Sheepnose Mussel		Proposed Endangered	Rock Island Ecological Services		
Crustaceans	Alabama cave shrimp		Endangered	Alabama Ecological Services	Alabama Cave Shrimp	Final
Fishes	Snail darter (Percina tanasi)		Threatened	Tennessee Ecological Services	Snail Darter	Final
Fishes	Spotfin Chub (Erimonax	Entire	Threatened	Asheville Ecological Services	Spotfin Chub	Final
Fishes	Slackwater darter (Etheostoma		Threatened	Mississippi Ecological Services	Slackwater Darter	Final
Flowering Plants	Price's potato-bean (Apios		Threatened	Tennessee Ecological Services	Price's Potato Bean	Final
Flowering Plants	Morefield's leather flower		Endangered	Tennessee Ecological Services	Morefield's Leather-flower	Final
Mammals	Indiana bat (Myotis sodalis)		Endangered	Bloomington Ecological	Indiana Bat (Myotis sodalis)	Draft Revision 1
Mammals	Gray bat (Myotis grisescens)		Endangered	Columbia Ecological Services	Gray Bat	Final
Snails	Armored snail (Pyrgulopsis		Endangered	Alabama Ecological Services	Technical Draft Recovery Plan	Draft
Snails	Slender campeloma		Endangered	Alabama Ecological Services		

Species by County List

County: Madison, AL

[Federal Register: July 9, 2007 (Volume 72, Number 130)]
[Rules and Regulations]
[Page 37345-37372]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:**fr09jy07-6**]
[[Page 37345]]

Part III
Department of the Interior

Fish and Wildlife Service

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50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Removing the Bald Eagle in the Lower 48 States From the List of Endangered and Threatened Wildlife; Final Rule; Endangered and Threatened Wildlife and Plants; Draft Post-Delisting and Monitoring Plan for the Bald Eagle (Haliaeetus leucocephalus) and Proposed Information Collection; Notice

[[Page 37346]]

DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
50 CFR Part 17
RIN 1018-AF21
Endangered and Threatened Wildlife and Plants; Removing the Bald Eagle in the Lower 48 States From the List of Endangered and Threatened Wildlife

AGENCY: Fish and Wildlife Service, Interior.
ACTION: **Final rule.**

SUMMARY: The best available scientific and commercial data indicate that the bald eagle has recovered. Therefore, under the authority of the Endangered Species Act of 1973, as amended (Act), we, the U.S. Fish and Wildlife Service, remove (delist) the bald eagle (Haliaeetus leucocephalus) in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. This determination is based on a thorough review of all available information, which indicates that the threats to this species have been eliminated or reduced to the point that the species has recovered and no longer meets the definition of threatened or endangered under the Act.

Fueled by a reduction in the threats to the bald eagle, the population in the lower 48 States has increased from approximately 487 breeding pairs in 1963, to an estimated 9,789 breeding pairs today. The recovery of the bald eagle is due in part to the reduction in levels of persistent organochlorine pesticides (such as DDT) occurring in the environment and habitat protection and management actions. The protections provided to the bald eagle under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA) will continue to remain in place after the species is delisted. To help provide more clarity on the management of bald eagles after delisting, we recently published a regulatory definition of ``disturb'', the final National Bald Eagle Management Guidelines and a proposed rule for a new permit that would authorize limited take under BGEPA and grandfather existing Act authorizations.

DATES: This rule is effective August 8, 2007.

FOR FURTHER INFORMATION CONTACT: Chief, Branch of Recovery and Delisting, telephone (703) 358-2061 or facsimile (703) 358-1735.

Additional information is also available on our Web site at http://www.fws.gov/migratorybirds/BaldEagle.htm. Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 1-800-877-8339 for TTY assistance, 24 hours a day, 7 days a week.

Whole thing can be read at this site....

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2007_register&docid=fr09jy07-6

REFERENCE 19

National Wetlands Inventory

Fisheries and Habitat Conservat

Search NWI Website

Wetlands provide a multitude of ecological, economic and social benefits. They provide habitat for fish, wildlife and a variety of plants. Wetlands are nurseries for many saltwater and freshwater fishes and shellfish of commercial and recreational importance. Wetlands are also important landscape features because they hold and slowly release flood water and snow melt, recharge groundwater, act as filters to cleanse water of impurities, recycle nutrients, and provide recreation and wildlife viewing opportunities for millions of people.

Wetlands Mapper

Download Data

View Wetlands w/ Google Earth

Search Engine

Frequently Asked Questions

NWI Program

Latest News and Reports

Status and Trends of Wetlands in the Conterminous United States 2004 to 2009: Report to Congress on the status and trends of our Nation's wetlands resources

This report is the latest in a continuous series spanning 50 years of wetlands data. It represents the most comprehensive and contemporary effort to track wetlands resources at a national scale. Click here to download the report and related documents.

Characterization of Lands Inundated by the Flood Event of 2011

In April and May of 2011, flooding inundated lands along the Ohio and Lower Mississippi Rivers. Flood levels along portions of the Mississippi River peaked at the highest levels since 1937. An analysis of the extent of flooding was determined by the comparison of MODIS imagery between pre-flood and flood crest conditions. Click here to download (67MB PDF document).

Free Publications

We have a limited amount of hard copy publications available for free: 2000 and 2006 Status and Trends Reports, Classification of Wetlands and Deepwater Habitats, and Wetlands Coloring Books. Send your request (name and address) to Wetlands_Team@fws.gov.

Data Collection Requirements and Procedures for Mapping Wetland, Deepwater and Related Habitats

With the adoption of a new Federal Wetlands Mapping Standards, the USFWS has developed an important

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

M - Marine

Subsystem	1 - Subtidal				2 - Intertidal			
Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	RF – Reef	AB – Aquatic Bed	RF – Reef	RS – Rocky Shore	US – Unconsolidated Shore
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud	1 Algal 3 Rooted Vascular	1 Coral 3 Worm	1 Algal 3 Rooted Vascular	1 Coral 3 Worm	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

E - Estuarine

Subsystem	1 - Subtidal				2 - Intertidal							
Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	RF – Reef	AB – Aquatic Bed	RF – Reef	SB – Streambed	RS – Rocky Shore	US – Unconsolidated Shore	EM – Emergent	SS – Scrub-Shrub	FO – Forested
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 4 Floating Vascular	2 Mollusk 3 Worm	1 Algal 3 Rooted Vascular 4 Floating Vascular	2 Mollusk 3 Worm	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Persistent 2 Non-persistent 5 *Phragmites australis*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

R - Riverine

Subsystem	1 - Tidal	2 – Lower Perennial	3 – Upper Perennial	4* - Intermittent	5* – Unknown Perennial		
Class	RB** – Rock Bottom	UB – Unconsolidated Bottom	SB** – Streambed	AB – Aquatic Bed	RS – Rocky Shore	US – Unconsolidated Shore	EM – Emergent
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent

* **Intermittent** is limited to the **Streambed** Class;
Unknown Perennial is limited to **Unconsolidated Bottom** Class code **R5UB** only
** **Rock Bottom** is not permitted for the **Lower Perennial** Subsystem;
Streambed is limited to **Tidal** and **Intermittent** Subsystems

Classification of Wetlands and Deepwater Ha[illegible] of the United States, Cowardin *et al.* 1979

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

System: L - Lacustrine

Subsystem: 1 - Limnetic

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular

Subsystem: 2 - Littoral

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
RS – Rocky Shore	1 Bedrock 2 Rubble
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
EM – Emergent	2 Nonpersistent

System: P - Palustrine

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
ML – Moss-Lichen	1 Moss 2 Lichen
EM – Emergent	1 Persistent 2 Nonpersistent 5 *Phragmites australis*
SS – Scrub-Shrub	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen
FO – Forested	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

MODIFIERS

In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

Water Regime			Special Modifiers	Water Chemistry			Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded-Tidal	b Beaver	1 Hyperhaline	7 Hypersaline	a Acid	g Organic
B Saturated	M Irregularly Exposed	R Seasonally Flooded-Tidal	d Partly Drained/Ditched	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	T Semipermanently Flooded-Tidal	f Farmed	3 Mixohaline (Brackish)	9 Mixosaline	i Alkaline	
E Seasonally Flooded/ Saturated	P Irregularly Flooded	V Permanently Flooded-Tidal	h Diked/Impounded	4 Polyhaline	0 Fresh		
F Semipermanently Flooded			r Artificial	5 Mesohaline			
G Intermittently Exposed			s Spoil	6 Oligohaline			
H Permanently Flooded			x Excavated	0 Fresh			
J Intermittently Flooded							
K Artificially Flooded							

Wetlands and Deepwater Habitats Mapping Codes

Class/Subclass		Code	System and Subsystem: Marine – Subtidal (M1)	Marine – Intertidal (M2)	Estuarine – Subtidal (E1)	Estuarine – Intertidal (E2)	Riverine† – Tidal (R1)	Riverine† – Lower Perennial (R2)	Riverine† – Upper Perennial (R3)	Riverine† – Intermittent (R4)	Lacustrine – Limnetic (L1)	Lacustrine – Littoral (L2)	Palustrine – N/A (P)	Water Regimes
	Rock Bottom	RB												Nontidal F, G, H, K Tidal L, T*, V*
	Bedrock	RB1												
	Rubble	RB2												
	Unconsolidated Bottom	UB												Nontidal F, G, H, K Tidal L, T*, V*
	Cobble-Gravel	UB1												
	Sand	UB2												
	Mud	UB3												
	Organic	UB4												
	Aquatic Bed	AB												Nontidal C, F, G, H, K Tidal L, M, N, R*, T*, V*
	Algal	AB1												
	Aquatic Moss	AB2												
	Rooted Vascular	AB3												
	Floating Vascular	AB4												
	Reef	RF												Tidal L, M, N, P
	Coral	RF1												
	Mollusk	RF2												
	Worm	RF3												
	Streambed	SB												Nontidal A, C, J, K Tidal M, N, P, R*, S*
	Bedrock	SB1												
	Rubble	SB2												
	Cobble-Gravel	SB3												
	Sand	SB4												
	Mud	SB5												
	Organic	SB6												
	Vegetated (pioneer plants)	SB7												
	Rocky Shore	RS												Nontidal A, C, J, K Tidal M, N, P, R*, S*
	Bedrock	RS1												
	Rubble	RS2												
	Unconsolidated Shore	US												Nontidal A, C, J, K Tidal M, N, P, R*, S*
	Cobble-Gravel	US1												
	Sand	US2												
	Mud	US3												
	Organic	US4												
	Vegetated (pioneer plants)	US5												

† **Unknown Perennial R5** - This Subsystem designation was created specifically for use when the distinction between Lower Perennial, Upper and Tidal subsystems cannot be made through remote sensing and no supplementary data are available. Use is limited to the Unconsolidated Bottom class. The only valid code is R5UB.

* Tidally influenced freshwater systems.

Valid Invalid

Table Revised June 23, 2010

Wetlands and Deepwater Habitats Mapping Codes *continued*

Class/Subclass		Code	System and Subsystem: Marine Subtidal M1	Marine Intertidal M2	Estuarine Subtidal E1	Estuarine Intertidal E2	Riverine Tidal R1	Riverine Lower Perennial R2	Riverine Upper Perennial R3	Riverine Intermittent R4	Lacustrine Limnetic L1	Lacustrine Littoral L2	Palustrine N/A P	Water Regimes
	Moss-Lichen	ML												Nontidal B
	Moss	ML1												
	Lichen	ML2												
	Emergent	EM												Nontidal A, B, C, E, F, G, H, J, K Tidal N, P, R*, S*, T*
	Persistent	EM1												
	Phragmites	EM5												
	Nonpersistent	EM2												Nontidal F, G, H, K Tidal N and T*
	Scrub-Shrub	SS												Nontidal A, B, C, E, F, G, H, J, K Tidal M, N, P, R*, S*, T*
	Broad-leaved Deciduous	SS1												
	Needle-leaved Deciduous	SS2												
	Broad-leaved Evergreen	SS3												
	Needle-leaved Evergreen	SS4												
	Dead	SS5												
	Deciduous	SS6												
	Evergreen	SS7												
	Forested	FO												Nontidal A, B, C, E, F, G, H, J, K Tidal M, N, P, R*, S*, T*
	Broad-leaved Deciduous	FO1												
	Needle-leaved Deciduous	FO2												
	Broad-leaved Evergreen	FO3												
	Needle-leaved Evergreen	FO4												
	Dead	FO5												
	Deciduous	FO6												
	Evergreen	FO7												

* Tidally influenced freshwater systems.

Valid Invalid

MODIFIERS

In order to more adequately describe wetlands and deepwater habitats, one or more of the special, water chemistry, or soil modifiers may be applied to classes or subclasses. The farmed modifier may also be applied to the Palustrine System level.

Water Regime Modifiers

Nontidal		Saltwater tidal	
A	Temporarily Flooded	L	Subtidal
B	Saturated	M	Irregularly Exposed
C	Seasonally Flooded	N	Regularly Flooded
E	Seasonally Flooded / Saturated	P	Irregularly Flooded
F	Semipermanently Flooded	**Freshwater Tidal**	
G	Intermittently Exposed	S	Temporarily Flooded -Tidal
H	Permanently Flooded	R	Seasonally Flooded-Tidal
J	Intermittently Flooded	T	Semipermanently Flooded-Tidal
K	Artificially Flooded	V	Permanently Flooded-Tidal

Special Modifiers

These Codes are used to indicate habitats modified or created by man or beaver. The use of only one special modifier is permitted, (e.g. PUBHx).

b	Beaver
d	Partly Drained/Ditched
f**	Farmed
h***	Diked/Impounded
r	Artificial
s	Spoil
x	Excavated

Other Modifiers

Other modifiers are not widely used during image analyses but can be applied where additional information or field work provides sufficient information.

Water Chemistry

Coastal Halinity		Inland Salinity		pH Modifiers for all Freshwater		Soil	
1	Hyperhaline	7	Hypersaline	a	Acid	g	Organic
2	Euhaline	8	Eusaline	t	Circumneutral	n	Mineral
3	Mixohaline (Brackish)	9	Mixosaline	l	Alkaline		
4	Polyhaline	0	Fresh				
5	Mesohaline						
6	Oligohaline						
0	Fresh						

** Farmed wetlands are normally Pf (Palustrine farmed) but cultivated cranberry bogs may be classified as PSSf.

*** Because the diked/impounded modifier is crucial for sea-level models, it is given priority over any other modifiers. Example, diked/impounded - spoil areas will be coded h for diked/impounded.

REFERENCE 20

Temple, Bonnie

From: Temple, Bonnie
Sent: Friday, September 28, 2012 11:25 AM
To: Shell, Ronald T
Cc: Cruise, Michael; Hendrix, Dylan; Prestridge, Kenneth; Norris, Larry; Ellis, Gary; Ford, Lynn; 'Ralph Howard'
Subject: Reference for Environmental Justice on Google

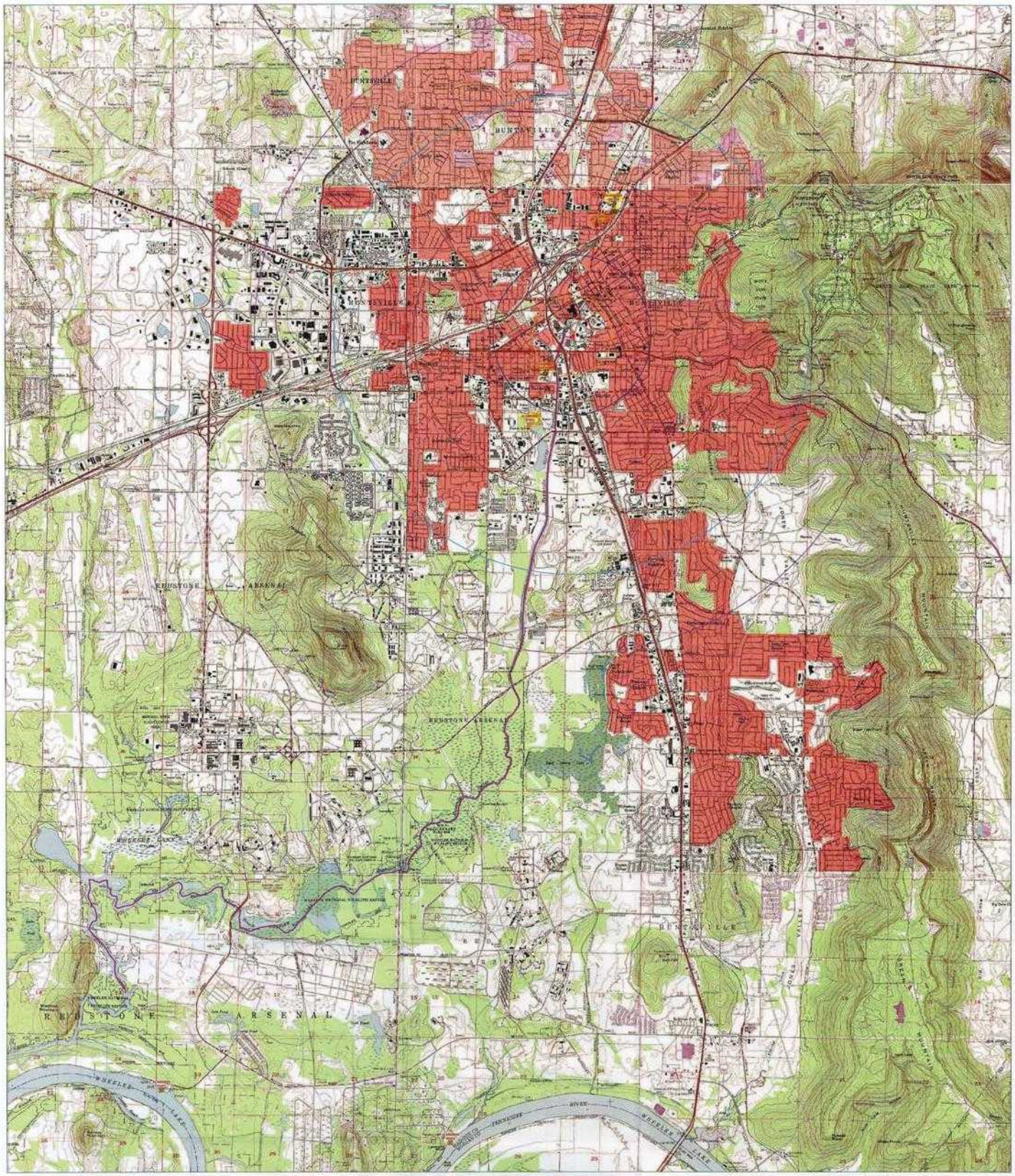
I just talked with Mr. Serdar Ertep with Region 4 EPA Office of Environmental Accountability (404-562-9683) concerning the reference for our EJ Google maps. We determined that this should be used.

> "US EPA Region 4, Office of Environmental Accountability, Environmental Justice Data Layer: Census 2000 STF3 File, Date 2002."

Lynn, Mr. Entep has not received the 2010 data and he doesn't know when he may receive it. No 2012 EJ for now.

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section
ADEM -- Land Division
Phone: (334) 271-7703
Fax: (3340 279-3050

ATTACHMENT 1



TVA Huntsville Primary Substation

Legend

RINGLABEL	Population Ring
1/4 Mile	42,387,703
1/2 Mile	1,477,747,012
1 Mile	4983,550,090
2 Mile	23168,309,823
3 Mile	34196,677,891
4 Mile	35967,674,668

NAME	Lat	Lon
TVA Huntsville Entrance	34.723035	-86.592162

0 2,000 4,000 6,000 8,000 Feet

QUADSHEET
Farley
Huntsville
Jeff
Madison
Maysville
Meridianville
Moorefield
New Hope
Triana

Lance R. LeFleur
Director

Robert J. Bentley
Governor

Alabama Department of Environmental Management
adem.alabama.gov
1400 Coliseum Blvd. 36110-2400 ▪ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ▪ FAX (334) 271-7950

June 12, 2012

MEMORANDUM

TO: Dave Davis, Chief
Assessment Section
Environmental Services Branch
Land Division

6/7/12

FROM: Alan Blake, Hydrogeologist ABB
Hydrogeology Section
Groundwater Branch
Land Division

RE: CERCLA Preliminary Assessment, US TVA Huntsville Primary Substation EPA ID No. AL1640090014, Huntsville, Madison County, Alabama.

A groundwater assessment has been completed for the above referenced site in Huntsville, Madison County, Alabama. The report evaluates the hydrogeologic setting at the site.

The report was prepared through a search of literature and information available to the Groundwater Branch. The author has not completed a site reconnaissance and the information has not been verified.

LOCATION

The site is located in downtown Huntsville in central Madison County, Alabama (Figures 1, 2 and 3). Specifically, the site is located at 948 Monroe Street. United States Geological Survey (USGS) 7.5 minute quadrangle map titled Huntsville, Alabama shows the site to be located in the NW1/4, Sec 1,T4S,R1W and the NE1/4, Sec 2,T4S,R1W. The Latitude is given as 34 degrees, 43minutes, 22.82 seconds north. The Longitude is given as 86 degrees, 35 minutes, 26.74 seconds west.

TOPOGRAPHY AND PHYSIOGRAPHY

The site is located in central Madison County within the Highland Rim Physiographic Section near the boundary of the Cumberland Plateau Section (Figures 5 and 8). The site is located in the Tennessee Valley District of the Highland Rim and to the east is the Jackson County

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S. W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
4171 Commanders Drive
Mobile, AL 36615-1421
(251) 432-6533
(251) 432-6598 (FAX)

Mountains District of the Cumberland Plateau (Figure 5). Topography within the Tennessee Valley District is characterized by low relief and flat to rolling topography. The Jackson County Mountains District is characterized by relatively high relief due to dissection with steep sided hills or mountains. The land surface in the Tennessee Valley near the site varies in elevation from about 600 feet National Geodetic Vertical Datum (NGVD) to 700 feet NGVD. Elevations on the mountains in the area vary from 960 feet NGVD to about 1620 feet NGVD.

CLIMATE

Madison County has a Humid Temperate Climate. The winters are mild and pleasant with the average temperature of 43.3 degrees Fahrenheit. Summers are long and hot with the average temperature of 78.7 degrees Fahrenheit. The yearly average is 61.5 degrees Fahrenheit and a Maximum of 111 degrees and a minimum of -10 degrees.

Precipitation is about 12.67inches in the summer and about 14.57inches in the winter. The yearly average is 51.71 inches.

SURFACE WATER DRAINAGE

The site is located adjacent to Huntsville Spring Branch (Figures 4 and 8). Precipitation which falls on the surface will move into the City Storm Sewerage System or will move towards Huntsville Spring Branch. Huntsville Springs Branch flows to the south towards the Tennessee River which is located about 13 miles to the south of downtown.

SOILS

The 1958 Soil Survey of Madison County, Alabama by the Natural Resources Conservation Service (NRCS) identifies the site as being on a relatively flat area adjacent to Huntsville Spring Branch on Decatur and Cumberland silty clay loam and(or) Huntington fine silt to fine sandy loam. Slopes of these soils vary from 0 percent to 6 percent. The soils are well drained and are deep soils derived from limestone bedrock. Permeability of the soils varies from moderate (0.6 to 2.0 inches per hour) to moderately rapid (2.0 to 6.0 inches per hour). The soils are classified as silty clays (CL) or clayey sand (SC).Huntington soils are frequently subject to overflow.

GEOLOGY

Geologic units that outcrop in Madison County are of sedimentary origin and inclued deposits of Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, Pleistocene and Recent Age (Figures 6 and 7). The units exposed at the surface include the Ordovician units of the Sequatchie Formation and Brassfield Limestone, the Devonian age Chattanooga Shale, the

Mississippian age Fort Payne Chert, Tuscumbia Limestone, Monteagle Limestone, Hartselle Sandstone, Bangor Limestone, Pennington Formation and the Pennsylvanian age Pottsville Formation. Pleistocene and Recent age deposits are found along streams and drainage ways in the county.

The Pleistocene and Recent age deposits are generally horizontal and flat. Older units in the Jackson County Mountains strike northeast to southwest generally and dip in various directions. The older units in the Highland Rim where the site is located generally strike east to west and dip to the south at about 20 feet per mile. The older units in the Highland Rim are located on the south side of the Nashville Dome centered near Nashville. Older units are located at the center and younger units are found as one moves out from the center.

Rocks of the Ordovician and Silurian are represented by the Sequatchie Formation and the Brassfield Limestone. These units are generally a grayish-green or yellowish-gray thin bedded calcareous shale and calcareous mudstone and medium-gray partly sandy and glauconitic medium to coarse grained bioclastic limestone.

The Devonian Chattanooga Shale is characterized as a dark gray to black thinly bedded shale with occasional sandstone at the base. The unit varies in thickness in Madison County from a few feet to ten feet.

The Mississippian age Fort Payne Chert is a dark gray siliceous limestone with abundant beds of dark gray nodular chert. The unit is thin to thick bedded and fine to coarse grained. In areas a light olive-gray claystone or shale (Maury Formation) occurs.

The Mississippian Tuscumbia Limestone is a light-gray limestone that is partly oolitic near the top and fine to very coarse grained bioclastic in most other areas. Nodules and concretions of light-gray chert occur throughout the limestone.

The Mississippian Monteagle Limestone is a light-gray oolitic limestone. The Hartselle Sandstone overlies the Monteagle Limestone and consists of light-colored thick-bedded to massive quartzose sandstone containing some interbeds of dark-gray shale. The Bangor Limestone overlies the Hartselle Sandstone and consists of a medium-gray bioclastic and oolitic limestone with interbeds of reddish and olive-green mudstone in the upper part.

The Mississippian age Pennington Formation consists of medium-gray shale containing interbedded limestone, dolomite, argillaceous sandstone and reddish to grayish-olive mudstone.

The Pennsylvanian age Pottsville Formation which overlies the Pennington Formation is a light-gray thin to thick-bedded quartzose sandstone and conglomerate containing interbedded dark-gray shale, siltstone and coal.

The youngest deposits are the Pleistocene terrace deposits and the Holocene deposits located along the streams and rivers. Pleistocene deposits consist of varicolored lenticular beds of sand, silt, clay and gravelly sand. Holocene deposits resemble Pleistocene deposits; however, they are found at lower elevation and generally in the stream and river beds.

HYDROGEOLOGY

The major aquifer in Madison County that will yield water is the Tuscumbia-Fort Payne Aquifer. This aquifer consists of three units, the Monteagle Limestone, the Tuscumbia Limestone and the Fort Payne Chert. The aquifer is recharged throughout its outcrop generally north of the Tennessee River in Madison and Limestone Counties. Flow within the aquifer is to the south.

Precipitation infiltrates and percolates through the residuum into the Mississippian carbonates. These carbonates are indurated and thoroughly cemented providing very little inter-granular space. Consequently, the carbonates' porosity and permeability are related to stress-relief (vertical) and bedding-plane (horizontal) fractures. This secondary porosity and permeability varies significantly over short distances. Solution activity can enlarge the fractures increasing porosity and permeability.

Yields within the Tuscumbia-Fort Payne Aquifer vary greatly depending on screen and well locations. Three Huntsville Utilities water sources are located within 4 miles of the site yield from 1,000 and 3,200 gal/min. A fourth water source (Huntsville Utilities' Braham Springs) located within 2 miles of the site yields about 28 Mgal/day.

MUNICIPAL WELLS

Three municipal wells and Braham Springs belonging to Huntsville Utilities are located within 4 miles of the site (Figure 10). Dallas Well drilled to 104 feet producing up to 3,200 gal/min and Lincoln Well drilled to 106 feet producing up to 3,200 gal/min are located about 2 miles north-northeast of the site. Lowes Mill Well drilled to 78 feet producing about 1,000 gal/min is

located about .4 mile to the southwest. Braham Springs producing about 28 Mgal/day is located about 1.75 miles to the south-southwest (Figure 10).

CONCLUSION

Contamination at the site could move with surface water along pathways to the city storm sewer system or to Huntsville Spring Branch. Surface water which does infiltrate into the subsurface could move contaminants to lower elevations and enter the Tuscumbia-Fort Payne Aquifer. There should be concern for the possibility of contamination reaching the Tuscumbia-Fort Payne Aquifer, the major water source for Madison County.

Cc: Bonnie Temple, Assessment Section, Environmental Services Branch, Land Division.

GROUNDWATER ROUTE WORKSHEET REQUIREMENTS

Route Characteristics

Aquifer of Concern	Fort Payne- Tuscumbia Aquifer
Gross Precipitation	53 inches per year
NET Precipitation	10 inches (from HRS)
Depth to Aquifer	0 to 50 feet
Slope	0 to 4 percent
Permeability of Unsaturated Zone	4.3 x 10(-4) to 1.4 x 10(-3) cm/sec
Is the Site Susceptible to Karst	Yes

TARGETS

Groundwater use------ There are three public wells and one public spring source within four miles of the site.

Distance to nearest public water well.----------.5 mile to nearest public well and 1 mile to the nearest public spring.

Figure 1 Location of the site

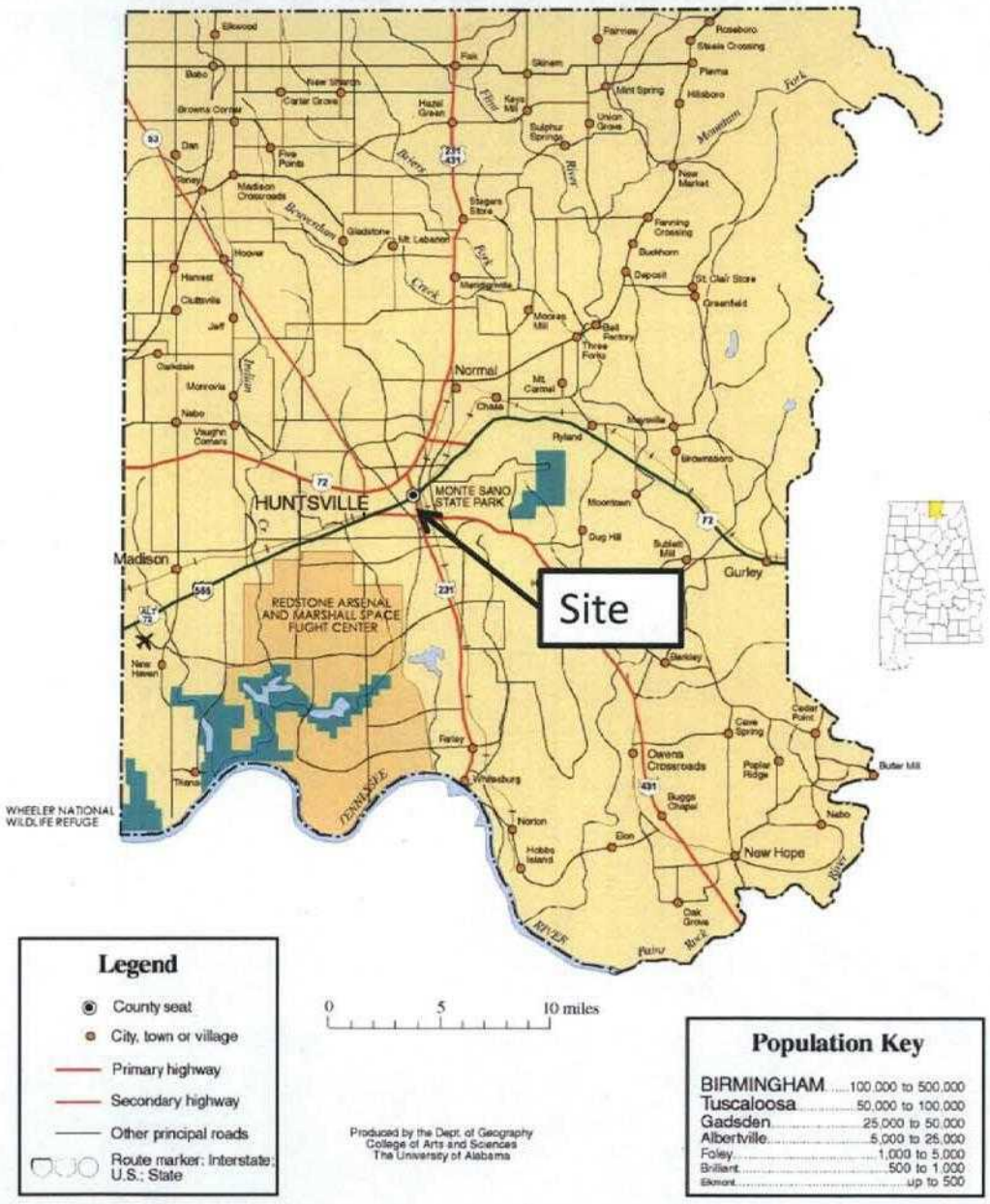


Figure 2 Madison County map showing the site

Figure 3 Specific location of site

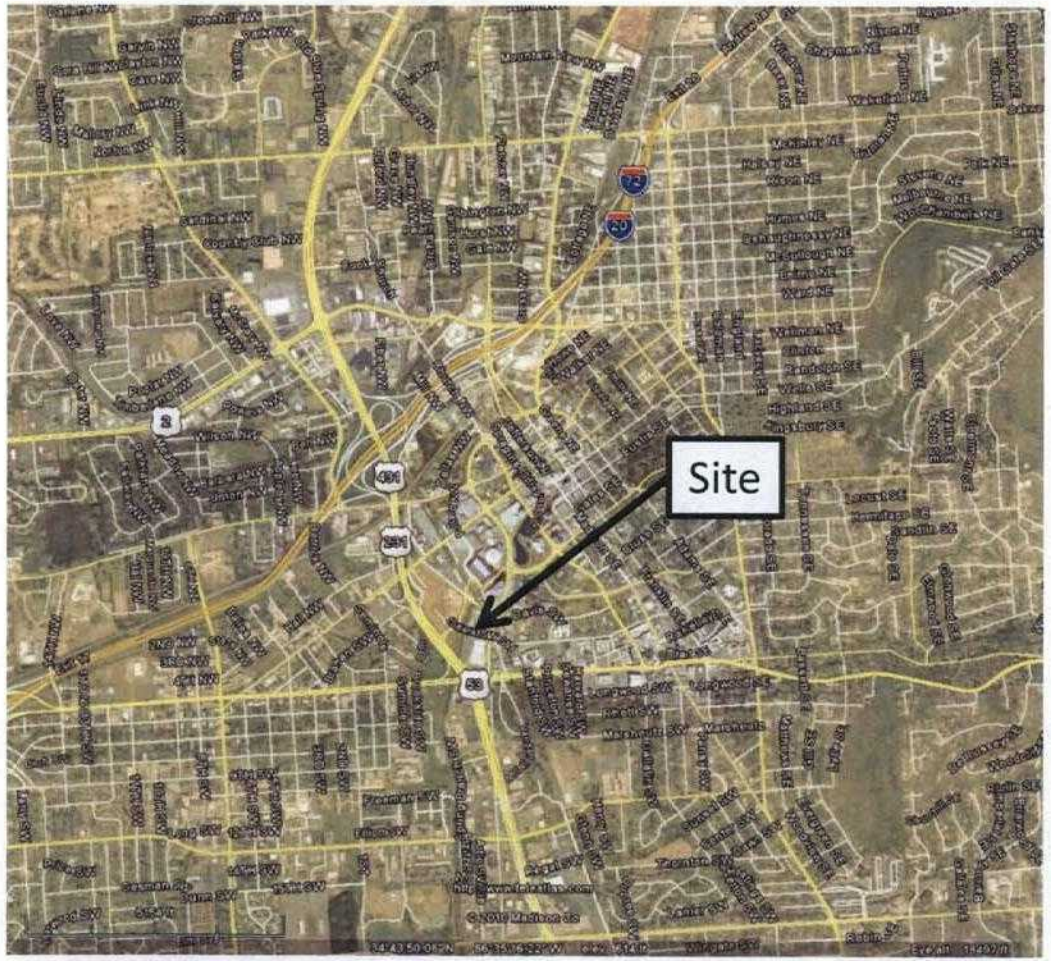


Figure 4 Close up of site in an air photo

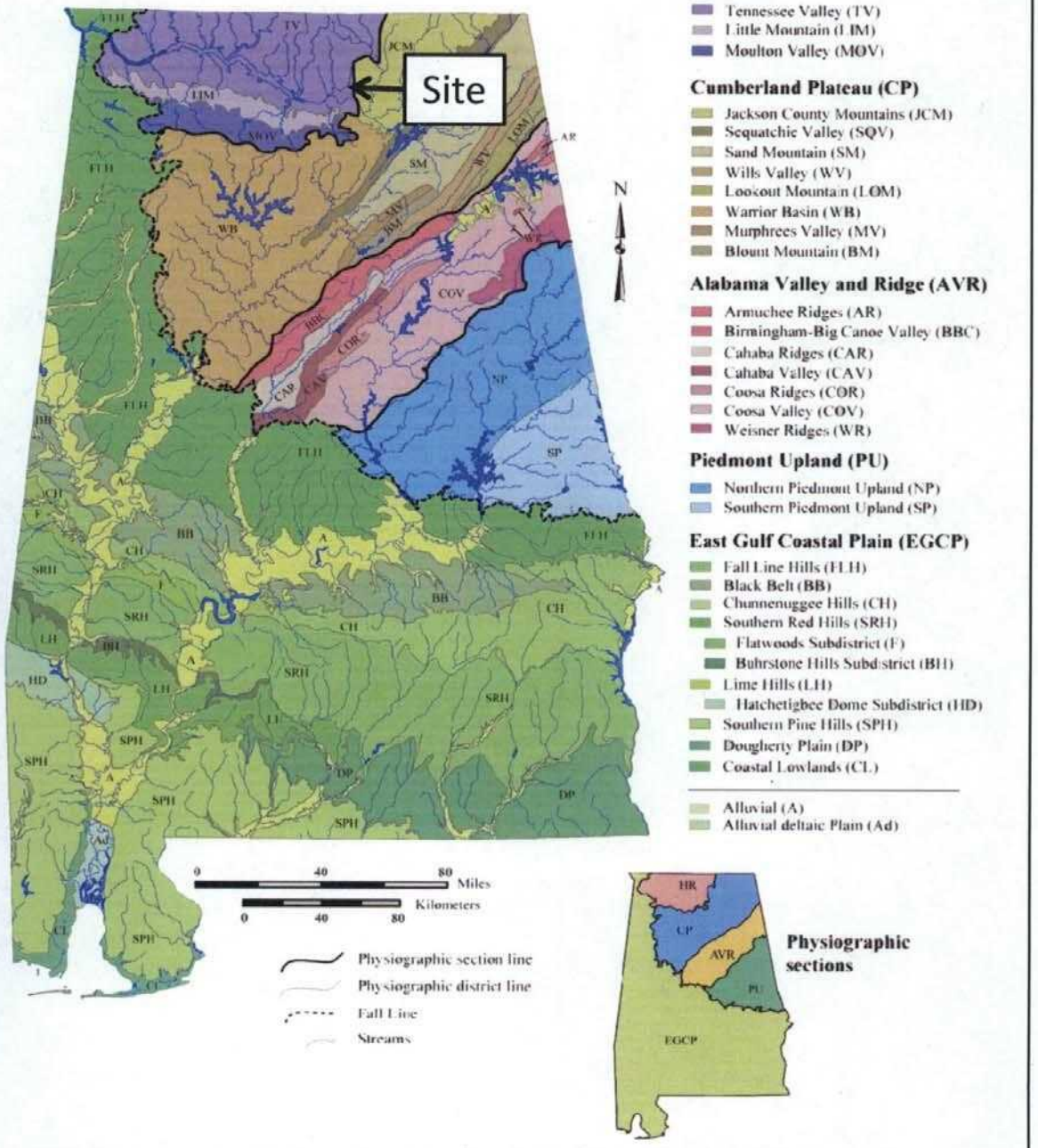


Figure 1. The physiography of Alabama. Districts in each section have been arranged decending from north to south. Alluvial deposits, which parallel the major river channels in the East Gulf Coastal Plain section, also occur in the Alabama Valley and Ridge section (modified from Sapp and Emplaincourt, 1975.

Figure 5 Physiographic map showing the site location

Figure 6 Geologic map of the area around the site

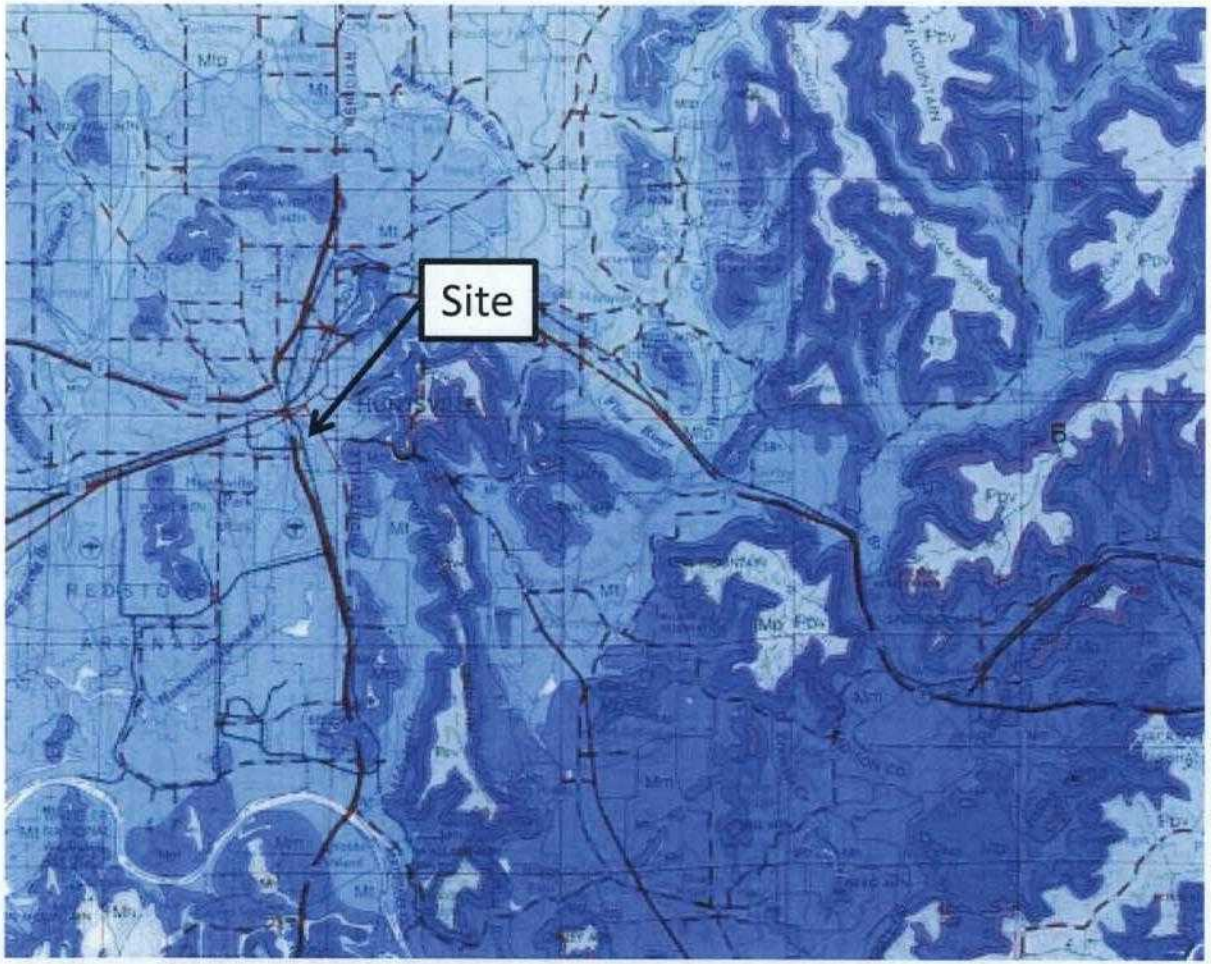


Figure 7 Geologic map of downtown Huntsville

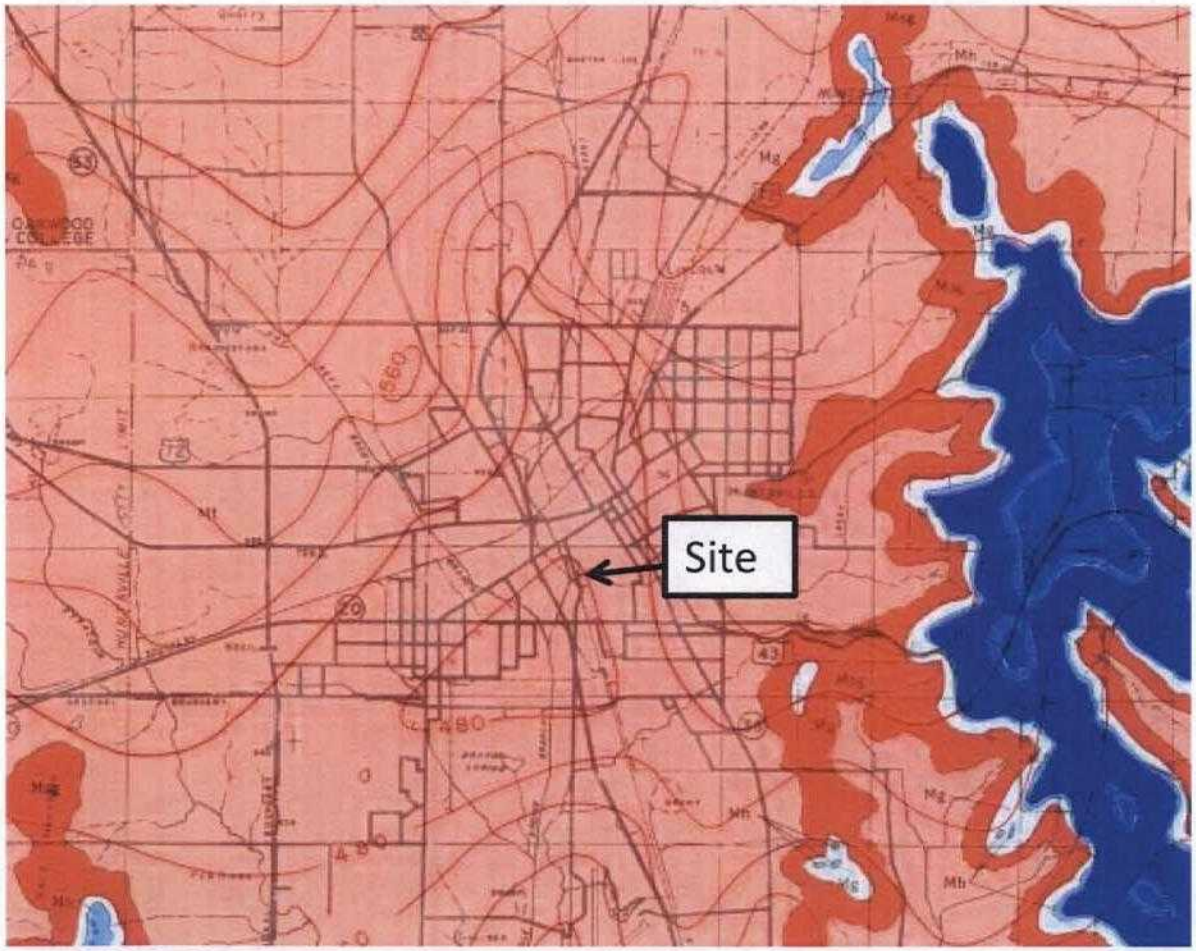


Figure 8 Topo map of the area around the site

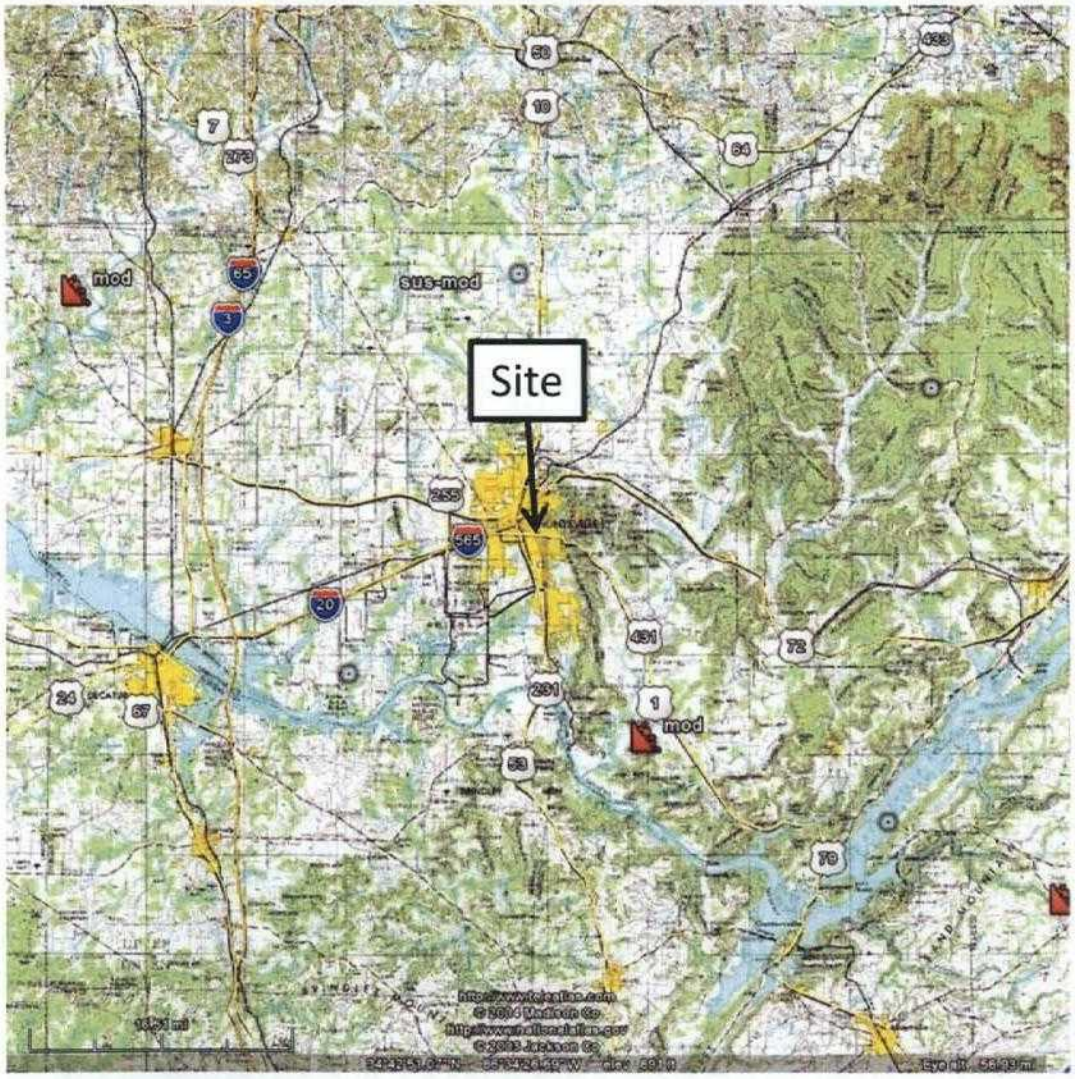


Figure 9 Topo map showing smaller area with more detail

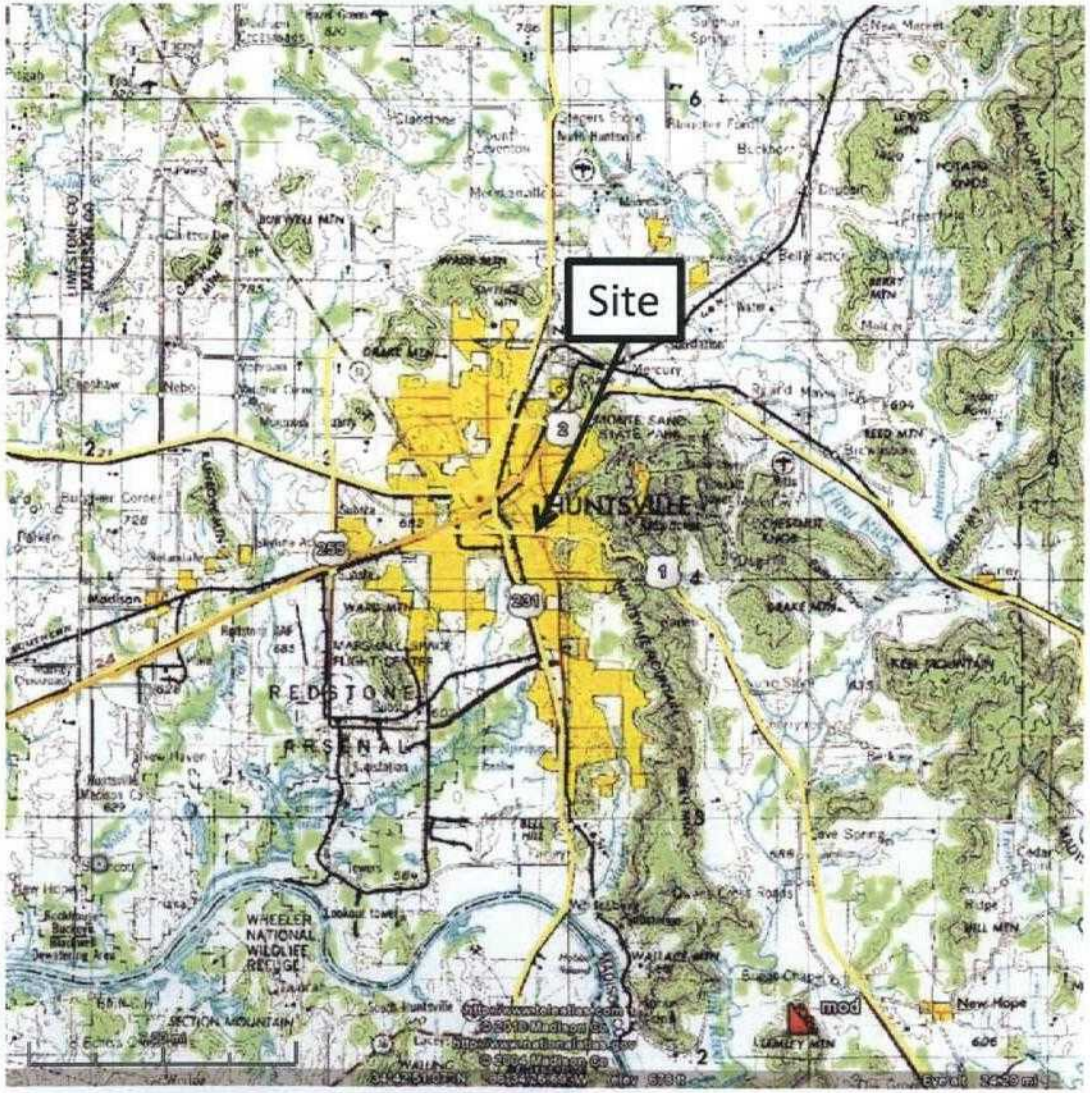
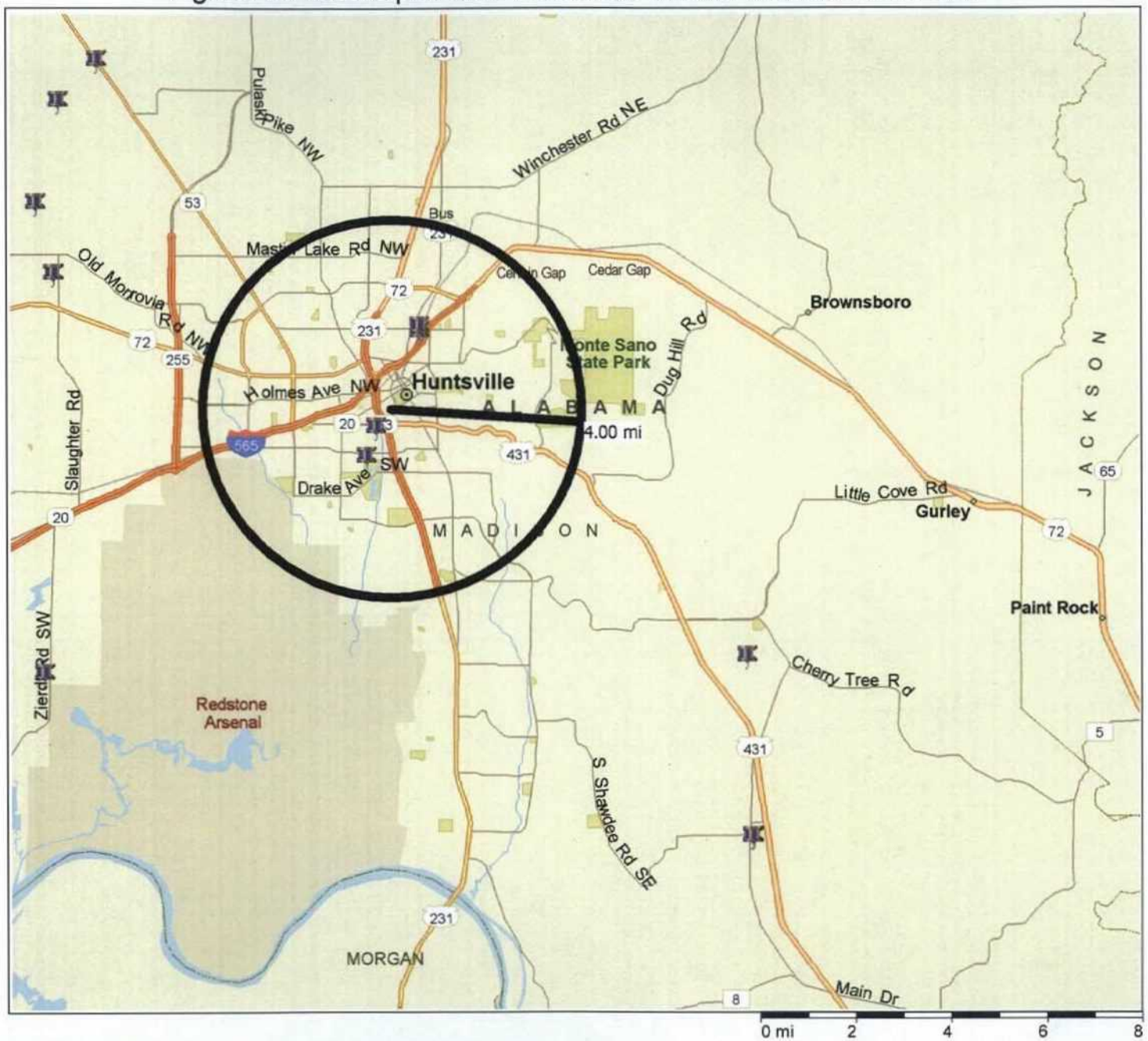


Figure 10 Municipal Water Sources Within 4 Miles of the Site



Lance R. LeFleur
Director

ADEM

Robert J. Bentley
Governor

Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ▪ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ▪ FAX (334) 271-7950

February 6, 2012

To: Dave Davis, Chief
Assessment Section
Environmental Services Branch
Land Division

From: Bonnie L. Temple, ESS
Environmental Services Branch
Land Division

Subject: CERCLA Preliminary Assessment – Trip Report
US TVA Huntsville Primary Substation
948 Monroe Street
Huntsville, Madison County, Alabama 35801
EPA ID No. AL1640090014

On January 18, 2012, Dylan Hendrix and I traveled to Huntsville, Alabama, to conduct a site inspection for the US TVA Huntsville Primary Substation (the Site). We met at the Tennessee Valley Authority's (TVA) Madison Substation at the Huntsville Service Center at 386 Shields Road in Huntsville. There we met TVA officials Ms. Tresha Landers, Environmental Engineer, Mr. Kenton Smithson, Mr. Benny Westmoreland, Manager of Huntsville Transmission Service Center, and Mr. Sean Landry, Huntsville Primary Substation Electrical Foreman. The owner is listed as TVA, and the operator is listed as Mr. Benny Westmoreland. I received a copy of the entire TVA PCB Spill Cleanup Report for Huntsville 161-kV Substation dated July 13, 1990. After our discussion, we traveled to the Site.

The Site is the primary substation providing downtown Huntsville and surrounding areas with electricity. TVA owns a portion of the substation, while Huntsville Utilities (HU) owns the remaining portion. TVA owns the lines coming into the substation and the circuit breakers, while HU owns the remainder of the site. Mr. Mike Counts is the contact with Huntsville Utilities and can be reached at his office (256) 535-1305 or cell phone (256) 652-4015.

The main entrance to the Site lies off Monroe Street in downtown Huntsville, Alabama. The substation is entirely fenced and the gates are locked unless workers are present. Three additional areas have fences to restrict access inside the substation proper. The majority of the property consists of gravel with an L-shaped portion of grass located under the north and western portion of the larger central switch yard. The front, central portion of the site had been used by MCI telecommunication. To the east is a HU switch yard, and the main Switch House belonging to TVA. To the west are TVA's capacitor bank and the third switch yard belonging to HU. Railroad tracks lie along the southeast corner of the property.

Dylan Hendrix collected digital photographs for the site.

Attachments

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S. W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
4171 Commanders Drive
Mobile, AL 36615-1421
(251) 432-6533
(251) 432-6598 (FAX)

Tennessee Valley Authority

Benny Westmoreland
P.E.

Manager, Huntsville
Transmission Service Center

370 Shields Road, CSC 1A-HNA
Huntsville, AL 35811
256-851-3503 Fax: 256-851-3450
Cell: 256-425-7146
jbwestmoreland@tva.gov@tva.gov

Tennessee Valley Authority

Sean Landry

Huntsville Electrician Foreman
Transmission Operation & Maint
Power System Operations

370 Shields Road
Mail Stop: CSC 1A-HNA
Huntsville, AL 35811
256-851-3504 Fax: 256-851-3450
Cell: 256-426-8086
sglandry@tva.gov

Photo 1: View looking through the main gate to the south and Monroe Street. The Huntsville Public Library is the multi-story brick building in the background. The MCI Communications building is to the right and west of the gate. An old railroad spur runs into property.

Photo 2: View looking east towards Huntsville Utilities' (HU) eastern 13,000 volt switch yard. Note signage at gate.

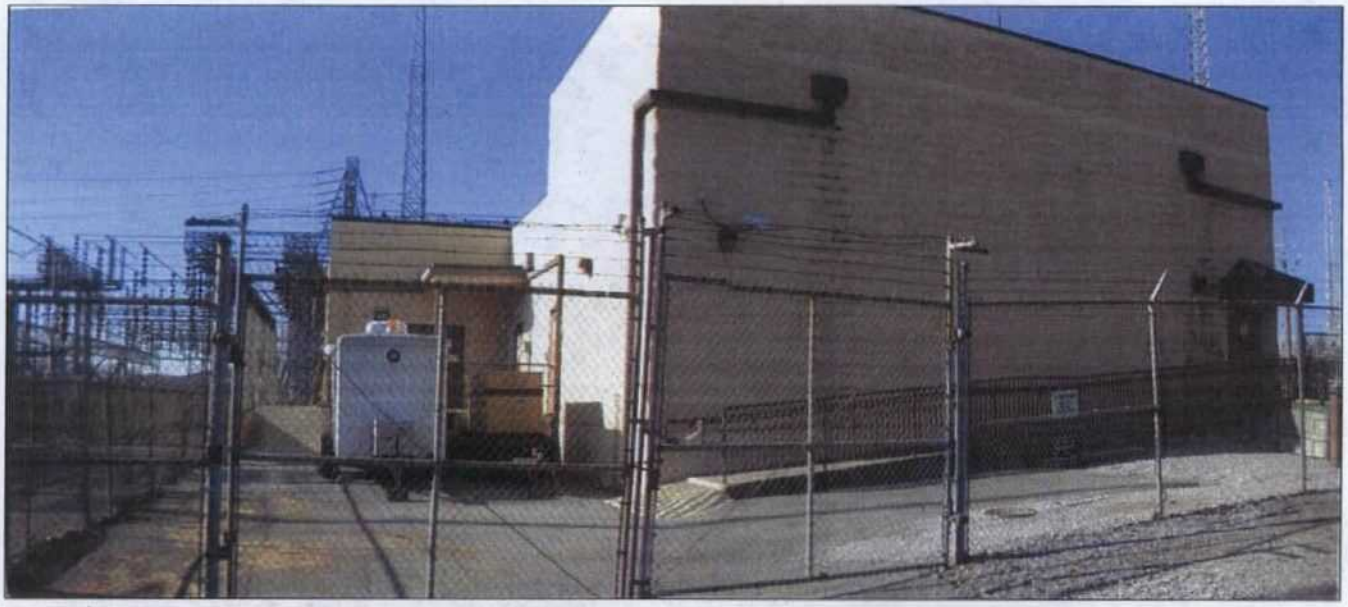


Photo 3: Panoramic view the MCI Communications building located west of the gate along Monroe Street. View is to the north into the center of the site.

Photo 4: Closer view of Figure 3 showing the signage attached to the fence.

Photo 5: Panoramic view of TVA's capacitor banks along Monroe Street where the PCB spill occurred. The inactive MCI Communications building is to the right.

Photo 6: View of HU's western switch yard is to the left and west of TVA's capacitor banks along Monroe Street. Note that the sign list the address of the Huntsville Primary Substation.

Photo 7: View along Monroe Street showing the gate to HU western switch yard. The joint HU and TVA 161,000 volt central switch yard can be seen in the upper right corner. Note gravel covering ground.

Photo 8: View along Monroe Street showing the gate to HU western switch yard. Note locked gate and signage at entrance.

Photo 9: View looking north to HU's western switch yard at the western edge of the Site. The joint HU and TVA 161,000 volt central switch yard can be seen in the upper left background. Note gravel covering ground.

Photo 10: View looking east along Monroe Street from HU's western switch yard. The Embassy Suites is the multi-story brick building in the background.

Photo 11: View looking north from Monroe Street along the Heart of Huntsville SW and Pollard Street NW. The Von Braun Center is the white building in the right background. There is another entrance farther north along the fence (See Photo 17). Note concrete covering ground.

Photo 12: View further along the fence showing the Heart of Huntsville SW in front of the Von Braun Center (white building in the background). The Embassy Suites is the brick building in the upper right.

Photo 13: View looking across the junction of Heart of Huntsville SW and Monroe Street. The Huntsville Public Library is the brick building in the upper left. The active railroad tracks for the Huntsville & Madison County Railroad Authority are under white arrow.

Photo 14: View looking west along the Site (right) from the junction of Heart of Huntsville SW and Monroe Street.

Photo 15: Panoramic view of TVA's capacitor banks (where the PCB spill occurred) as seen from inside the Site. The MCI Communications building is to the left.

Photo 16: Closer panoramic view of TVA's capacitor banks. Monroe Street lies in the background. Public library can be seen in the upper left. Note gravel covering ground.

Photo 17: Closer view of instructions for TVA's capacitor banks.

Photo 18: View of switch house in HU's western switch yard. TVA's capacitor banks lies at left.

Photo 19: Closer view of TVA's capacitor banks showing individual capacitors (yellow arrows).

Photo 20: Panoramic view, looking north from TVA's capacitor banks, showing HU's western switch yard is at left. The central, joint HU and TVA 161,000 volt central switch yard can be seen on the upper right. This area is covered with grass. Pinhook Creek is located at the northern boundary of the Site and flows along the entire edge from right/east to left/west.

Photo 21: Panoramic view looking north (center) and east (right) showing the central, joint HU and TVA 161,000 volt central switch yard. The majority of this area is covered with gravel with limited grass. HU's transformer bank is under red arrow. HU is still using the original type (oil) circuit breakers (yellow arrow).

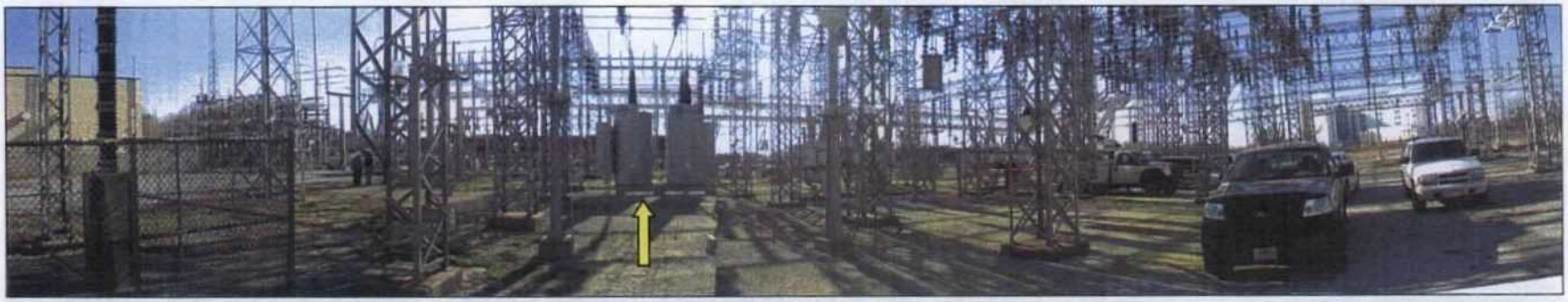


Photo 22: Panoramic view looking west (center) and north (right) showing the central, joint HU and TVA 161,000 volt central switch yard. HU's one circuit breaker bank is above yellow arrow. TVA has four, gas powered circuit breakers located right and to the north.

Photo 23: Panoramic view looking east showing HU's transformers bank. HU's 13,000 volt switch yard, located in the southeast corner of the Site, lies beyond fence to the right. Embassy Suites is in the background.

Photo 24: Panoramic view looking east showing HU's transformers bank. Embassy Suites is in the background. Note gravel lying over soil.

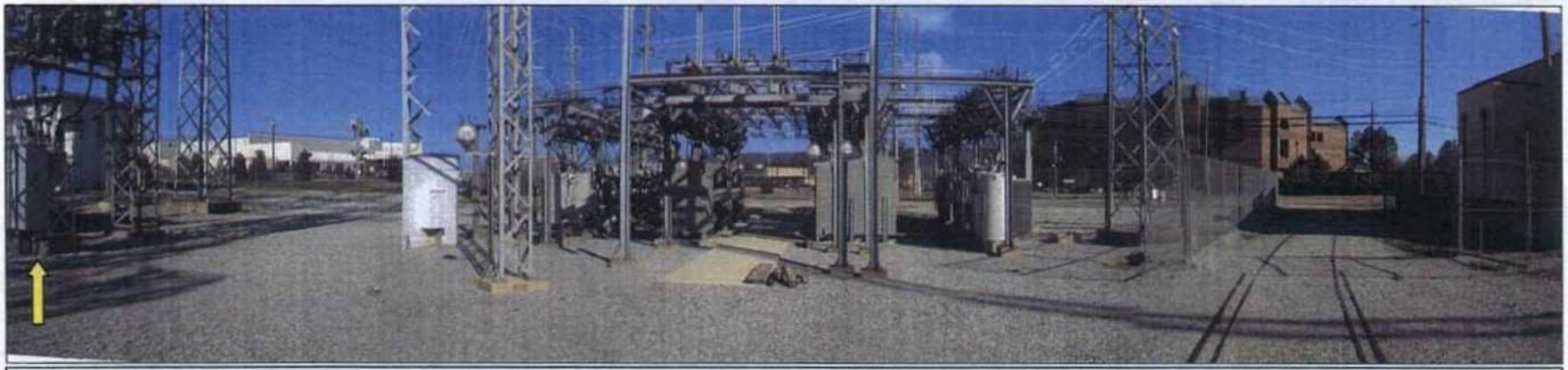


Photo 25: Panoramic view looking east showing HU's transformers bank (yellow arrow). HU's 13,000 volt switch yard is in the center. The main entrance lies to the right. The Von Braun Center is in the background (white building). Photo 1 was photographed at gate. Note gravel lying over soil.

Photo 26: Closer view looking east of entrance showing 13,000 volt switch yard. The main entrance lies to the right out of photograph. The Huntsville Public Library is in background at left.

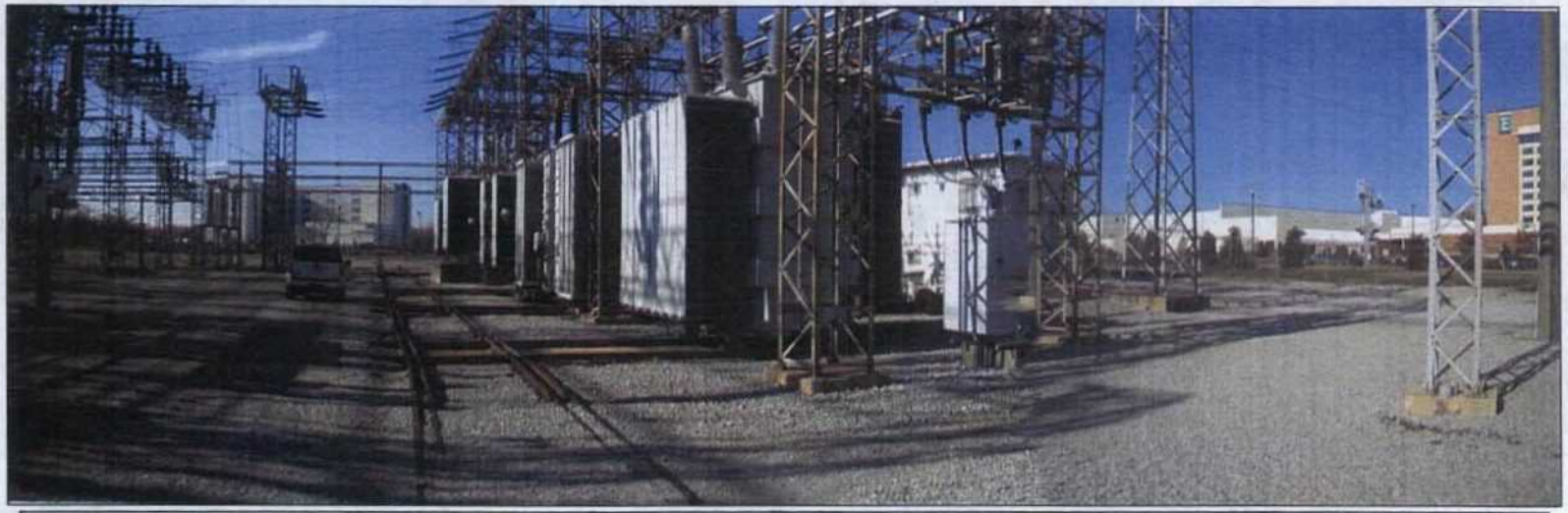


Photo 27: Panoramic view looking north and east showing HU's transformers bank in the center. The main entrance is behind photographer. The Von Braun Center and Embassy Suites are is in the background at right. This is the opposite view as in Photo 1.

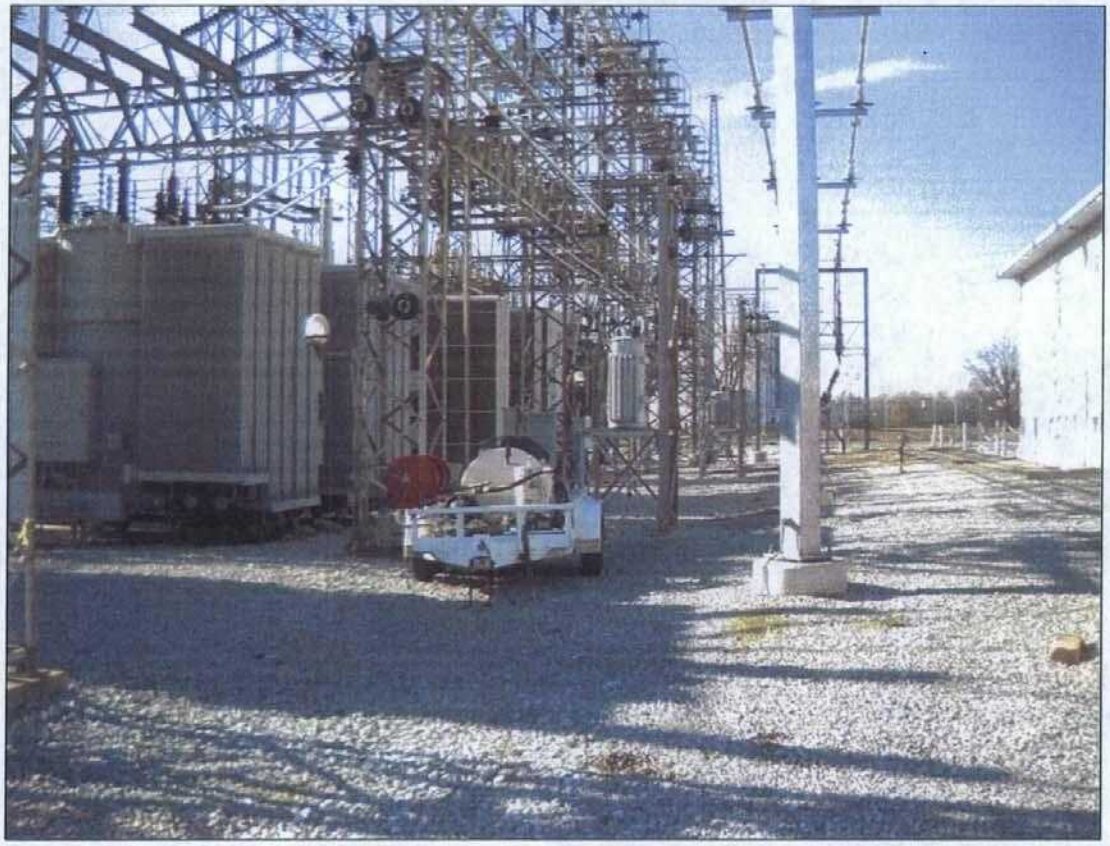


Photo 28: View looking north towards Pinhook Creek. The back or eastern side of the transformer bank is at the left while the Switch House is to the right. Note gravel lying over soil.

Photo 29: View east of Photo 28 showing the TVA's Switch House located between the transformers and Heart of Huntsville SW.

Photo 30: View is opposite Photo 29 looking south showing HU's 13,000 volt switch yard .

1/18/2012 Dylan Hendricks

TVA:

Trisha Landers
Kentucky Smithson
Bonny Westmoreland - NE AL
Sean Landry } electrician foreman

Info under Muscle Shoals

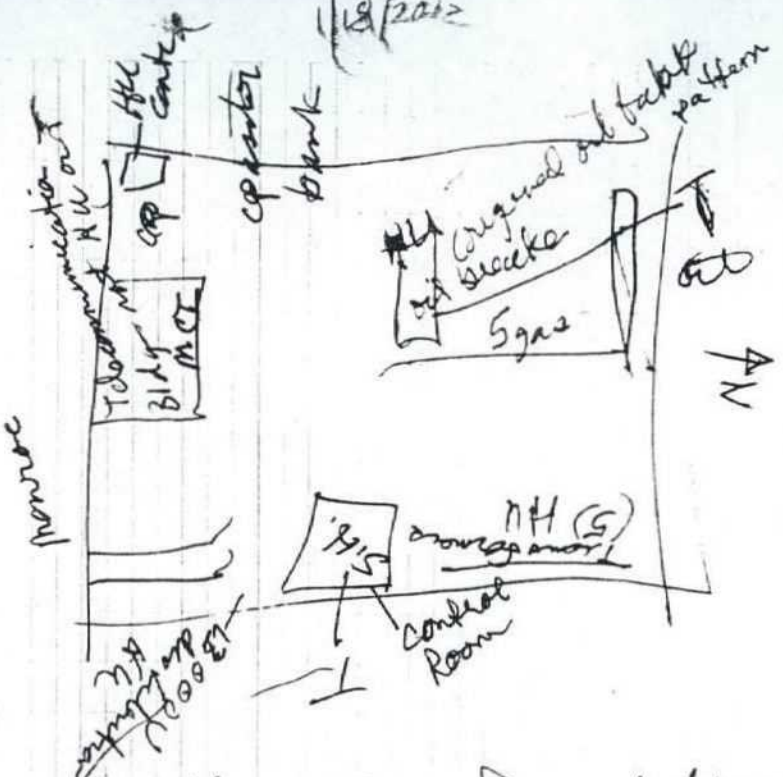
TVA - Huntsville Utilities
Benns as operator

Mike Corents - Huntsville Utilities
O 256-535-1305
C 256-652-4015
contact him

discuss reports

to site:

1/18/2012



Original purchase for substation at least by 1944

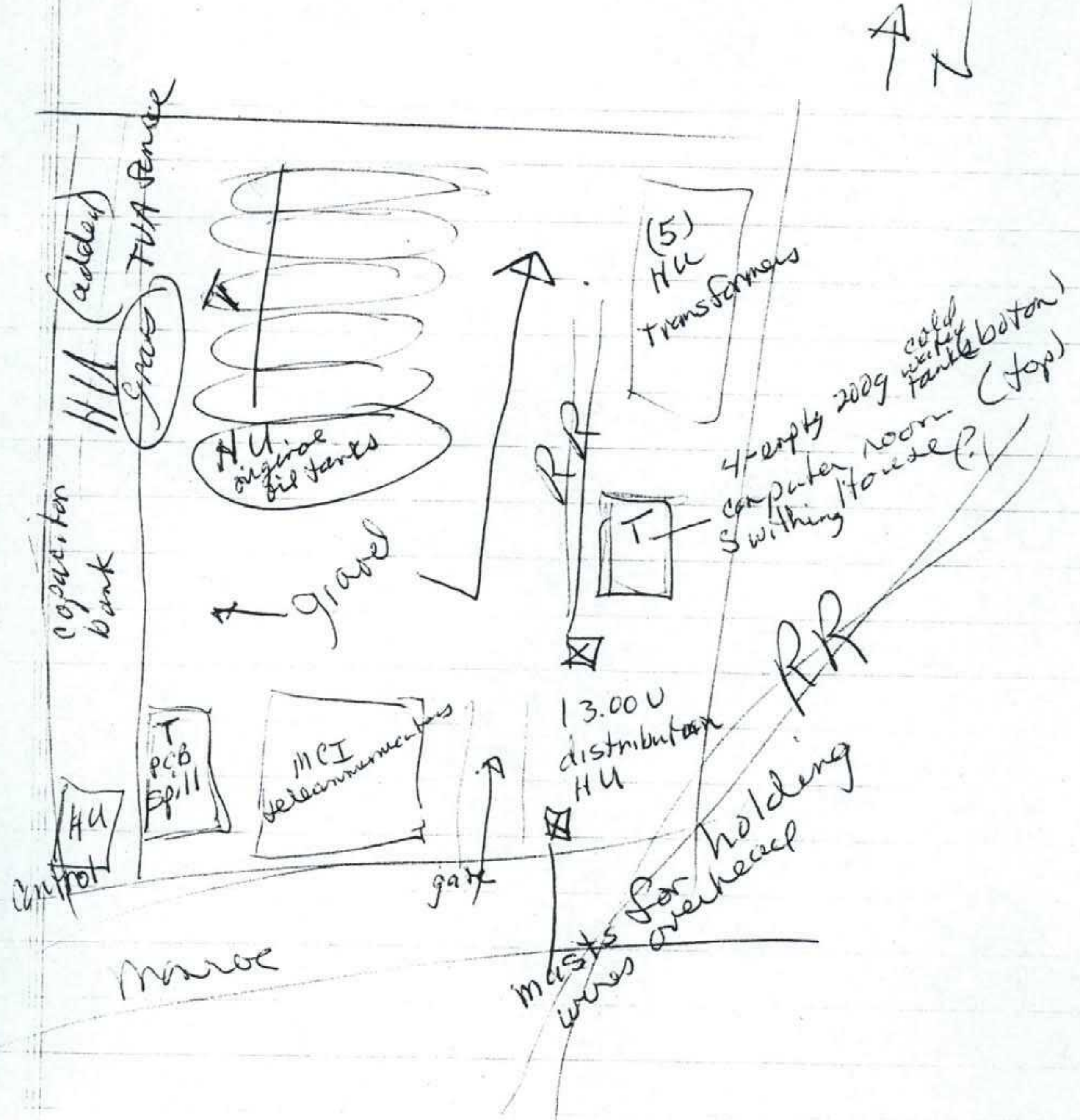
masts for holding subwire

4 standing tanks - empty - cold water ~ 200 gal

TVA owns lines coming in & circuit breakers - Customer N/H owns rest

left site 1434

1/18/2012


N
HU (added)
Grass
FVA fence
HU original oil tanks
(5) HU transformers
RR
4-empty 2009 cold water tanks (bottom)
computer room (top)
switching house (?)
T
capacitor bank
gravel
RR
T PCB spill
MCI telecommunications
13.00 V distribution HU
HU
control
gate
masts for holding wires overhead
Monroe

ADEM LAND, ENVIRONMENTAL SERVICES BRANCH, SITE ASSESSMENT UNIT: TELEPHONE CONVERSATION RECORD

Date:	October 5, 2012	TVA Huntsville Primary Substation #5851
Time:	1008	
Conservation with:	Mr. Mike Counts, Huntsville Utilities, office (256) 535-1305; cell phone (256) 652-4015	
Facility or Company:	US TVA Huntsville Primary Substation 948 Monroe Street Huntsville, Madison County, Alabama 35801	
Regarding:	Discuss property map, flooding & train activity	

10/5/2012 (1008): Left message.
10/11/2012 (~0900): I returned his call of Monday 10th at 9:06 am.

- What was there before Substation?: The northern part of the property, along the Heart of Huntsville SW and Pollard NW, was redeveloped during the time the Embassy Suites was built. This was around 10 years ago making it 2001-2002. He doesn't know what the property was used for originally, but during development of the Embassy Suites, refuse was found. Soil analysis would have to verify whether a city dump had been in the area.
- Burial: no known burials
- Flooding: During his time there he has not seen the substation flooded. It is built higher than the surrounding area.
- % city supplied: 30 percent of the City of Huntsville is supplied by power from this substation.

B. Temple

Temple, Bonnie

From: Elder, Brian K [bkelder@tva.gov]
Sent: Friday, December 07, 2012 2:00 PM
To: Temple, Bonnie
Cc: Landers, Tresha A; McGee, Donald E; Minghini, Cherie M; Markham, Wilbourne C Jr; Anderson, Cynthia M
Subject: RE: US TVA HUNTSVILLE PRIMARY SUBSTATION
Attachments: FW: Bank 862 Huntsville 161 kv Sub PCB Spill Cleanup Disposal Documents

Bonnie,

Please see the attached email for the records which show the ultimate destination for the waste material. Please let me know if you need anything further or if this will satisfy the inquiry.

Keith

From: Temple, Bonnie [mailto:BLT@adem.state.al.us]
Sent: Thursday, November 15, 2012 2:35 PM
To: Elder, Brian K
Subject: FW: US TVA HUNTSVILLE PRIMARY SUBSTATION

Hello Brian. Have you heard any more about the waste material (see below)? All I actually need is a statement from you all saying that waste in Manifest Document Number is TVA = 0003372 dated 7/11/1990 was sent to Muscle Shoals TVA. Then it sent from Muscle Shoals to ????? on such and such date. If it was part of a consolidated shipment, I would need date sent to disposal site and disposal site.

1. Loop from TVA Huntsville to final destination
2. Date or dates this occurred.

Thanks.

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section
ADEM -- Land Division
Phone: (334) 271-7703
Fax: (3340 279-3050

From: Temple, Bonnie
Sent: Friday, October 19, 2012 8:31 AM
To: 'Elder, Brian K'
Subject: RE: US TVA HUNTSVILLE PRIMARY SUBSTATION

The report has been held up this long. A few more weeks won't be an issue. Please let me know when you get the information.

Thanks.

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section
ADEM -- Land Division
Phone: (334) 271-7703
Fax: (3340 279-3050

From: Elder, Brian K [mailto:bkelder@tva.gov]
Sent: Friday, October 19, 2012 7:27 AM
To: Temple, Bonnie
Cc: Landers, Tresha A; Anderson, Cynthia M; Choate, Kimberly D; Minghini, Cherie M
Subject: RE: US TVA HUNTSVILLE PRIMARY SUBSTATION

Hi Bonnie,

These files are in our archives in Atlanta. We will make a request for them and send them to you as soon as possible. It may be a couple of weeks. Will that support your schedule?

Keith

B. Keith Elder, PE
Senior Manager Environmental Support - Energy Delivery / Property & Natural Resources
TVA Environmental Permits & Compliance
Office: 423-751-4094
Cell: 423-240-1424
Fax: 423-751-6083

From: Temple, Bonnie [mailto:BLT@adem.state.al.us]
Sent: Thursday, October 18, 2012 2:53 PM
To: Elder, Brian K
Cc: Landers, Tresha A; Anderson, Cynthia M; Choate, Kimberly D
Subject: FW: US TVA HUNTSVILLE PRIMARY SUBSTATION

Hello Brian. I am finishing my Preliminary Assessment on the Huntsville Primary Substation. I noticed in your documentation that the contaminated soil and liquid was sent to the TVA Muscle Shoals Power Service Center. The Manifest Document Number is TVA = 0003372 dated 7/11/1990 and the file is attached. Where was the contaminated materials sent for disposal? From Muscle Shoals to what company and their location? Thanks.

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section
ADEM -- Land Division
Phone: (334) 271-7703

Fax: (3340 279-3050

From: Elder, Brian K [mailto:bkelder@tva.gov]
Sent: Tuesday, December 13, 2011 3:02 PM
To: Temple, Bonnie
Cc: Landers, Tresha A; Anderson, Cynthia M; Choate, Kimberly D
Subject: RE: US TVA HUNTSVILLE PRIMARY SUBSTATION

Bonnie,

On searching our files, we identified a PCB spill involving capacitors that occurred at the TVA Huntsville, AL 161-kV Substation on June 13, 1990. We think this may be the event identified by EPA Region IV. The event was reported to the National Response Center at 4:30 pm EST on June 13, 1990, Event Number 26741. I have attached a PCB spill cleanup report along with a manifest showing shipment of spill cleanup materials. The attached cleanup report along with sample results and diagrams were forwarded to Ms. Connie Landers, EPA Region 4, on July 13, 1990. If you would like copies of the analytical results and diagrams, we can forward that separately by mail.

We have not identified any other documentation of spill events at this site that would qualify under CERCLA. If you have questions on the report or would like to receive copies of the analytical data and diagrams, just let me know.

Would the third week of January be acceptable for a site visit?

Keith
B. Keith Elder, PE
Senior Manager PSO Environmental Support
TVA Environmental Permits & Compliance
Office: 423-751-4094
Cell: 423-240-1424
Fax: 423-751-6083

From: Temple, Bonnie [mailto:BLT@adem.state.al.us]
Sent: Tuesday, December 06, 2011 5:01 PM
To: Landers, Tresha A; Elder, Brian K; Anderson, Cynthia M
Subject: US TVA HUNTSVILLE PRIMARY SUBSTATION

Merry Christmas! I am conducting a CERCLA Preliminary Assessment for the US TVA HUNTSVILLE PRIMARY SUBSTATION in Huntsville, Alabama, for US EPA Region 4. The site was discovered 12/12/1992 or around that d ate. I'm not sure what activity occurred, but there was Federal Enforcement taken at the site. I am looking for documentation concerning this activity and to set up a site inspection of the area. I appreciate any information you can give me. Thanks.

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section
ADEM -- Land Division
Phone: (334) 271-7703
Fax: (3340 279-3050

Temple, Bonnie

From: McCluskey, Stacey Sweatt [ssmccluskey@tva.gov]
Sent: Wednesday, December 05, 2012 2:35 PM
To: Markum, Travis R; Elder, Brian K
Cc: Brown, Amy L; Bernauer, B Paul; Pitts, Elizabeth A
Subject: FW: Bank 862 Huntsville 161 kv Sub PCB Spill Cleanup Disposal Documents
Attachments: Bank 862 Huntsville 161 kv Sub Disposal Doc Line 11b.pdf; Bank 682 Huntsville 161-kv Sub Disposal Doc. Line 11a.pdf

Skip and Keith,

This is in response to your request for more information concerning the final disposition of wastes generated from a PCB spill and cleanup at the Huntsville 161 KV site in 1990

See attached. Please give me a call if you have any questions. ----- the cleanup debris was disposed of through WM Emelle, and the equipment went to the Rollins Deer Park site.

From: Bernauer, B Paul
Sent: Tuesday, December 04, 2012 11:19 AM
To: McCluskey, Stacey Sweatt
Subject: Bank 862 Huntsville 161 kv Sub PCB Spill Cleanup Disposal Documents

Stacey,

Attached are the documents showing disposal of the PCB Spill Cleanup materials for the subject site. The information includes the incoming and outgoing manifests and the associated CDs for each shipment. Note one file is for line 11a which was shipped to Rollins, Deer Park, TX and the is for line 11b shipped to Chemical Waste Management, Emelle, AL.

Thanks!!

B. Paul Bernauer
PSC 1E - M
256-314-7873
FAX: 256-386-3516

TVA HWSF No. 90-005 Drum containing 3 Capacitors listed on
State Manifest Doc. No. TVA_0003372 Line 11a
Date Received: 07/11/1990

Shipped for disposal on 08/30/1990
Texas Manifest Doc. No. 00252004
90-005 listed on Continuation Page 3 of 5
Disposer: Rollins Environmental Services, Deer Park, TX
Dated Disposed: 09/19/1990
CD Received 10/1/1990

...or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. 4 0 C F R P A R T 7 6 1 | Manifest Document No. H D 1 1

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Tennessee Valley Authority
Southern Region/Huntsville District Office,
Huntsville, AL 35804-0328

4. Generator's Phone (205) 534-8434

A. State Manifest Document Number: TVA-000372

B. State Generator's ID:

5. Transporter 1 Company Name: TVA POWER SERVICE SHOPS

6. US EPA ID Number: A L 2 6 4 0 0 0 6 7 4 6

C. State Transporter's ID:

D. Transporter's Phone: (205) 386-2901

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address:
TVA MUSCLE SHOALS POWER SERVICE CENTER
HAZARDOUS WASTE STORAGE FACILITY
AL HWY. 133 AT MUSCLE SHOALS, AL
MUSCLE SHOALS, AL 35660

10. US EPA ID Number: A L 2 6 4 0 0 9 0 0 0 5

G. State Facility's ID:

H. Facility's Phone: (205) 386-2135

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Substance, solid/liquid, NOS, ORM-E NA 9188 (PCB) RQ-1	RQ	1 2	DM CM	294	K	
b. Hazardous Substance, solid, NOS, ORM-E NA 9188 (PCB) RQ-1	RQ	9 9	DM CM	177 91	K	
c. ~~Hazardous Substance, solid/liquid, NOS, ORM-E NA 9188 (PCB) RQ-1~~	~~RQ~~	1	CM	52	K	
d.						

J. Additional Descriptions for Materials Listed Above
11a. 3 capacitors, PCB, Line Material, 50-kVAR, Bank 862, Huntsville 161-kV Sub., SN Z117493, C119221, C121062, Removed from service on 6/13/90. 11b. Rags, etc. used in cleanup and soil, PCB, Bank 862 at Huntsville 161-kV Sub., Removed 6/15/90

K. Handling Codes for Wastes Listed Above
11c. 13 capacitors, Huntsville Storeroom, Removed from service on 7/10/90. See attached list for serial numbers.

15. Special Handling Instructions and Additional Information

HAULED ON TVA TRUCK, ~~PLACARDS~~ PLACARDS ON TRUCK. EMERGENCY PROCEDURE INFORMATION GIVEN TO DRIVER ON TRUCK. DIKE AND CONTAIN IN CASE OF SPILL OR LEAKAGE.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
~~Kenneth E. Plunkett~~		

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
~~Wayne Wallace~~		04 11 90

GENERATOR

TRANSPORTER

FACILITY

Date of shipment 8-30-90

HWSF Load Number 90P21

Contract # 9DPQH-394786-01 RD 125299

Manifest # 00252004 Manifest Returned 10-1-90

Material Shipped ~~30~~ 73 Drums PCB ~~liquid~~ CAPACITORS

Company Rollins

Certificate of Disposal Recevied 10-1-90

Released for payment 10-2-90

8894D

TEXAS WATER COMMISSION
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form approved. OMB No. 2050-0039, expires 09-30-

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. AL2640090005 — Manifest Document No. 95Pa7
2. Page 1 of 5 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: TENNESSEE VALLEY AUTHORITY, PSC 1S 127A, MUSCLE SHOALS, AL 35660
4. Generator's Phone: (205) 386-2135

A. State Manifest Document Number: No 0025204
B. State Generator's ID: 99901

5. Transporter 1 Company Name: Custom Environmental Transport
6. US EPA ID Number: TXD 980728458
C. State Transporter's ID: 40156
D. Transporter's Phone: 713-930-4500

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address: ROLLINS ENVIRONMENTAL SERVICES, P.O. BOX 609, 2027 BATTLEGROUND ROAD, DEER PARK, TX 77536
10. US EPA ID Number: TXD055141328
G. State Facility's ID: 50039
H. Facility's Phone: 713-930-2300

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
RQ	a. HAZARDOUS SUBSTANCE, LIQUID, N.O.S., ORM-E, NA9188 (Polychlorinated Biphenyls) RQ-1	073	DM	00272	K	172880
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above: 11a. PO # 6 42452-39. See attached pages for additional information.
K. Handling Codes for Wastes Listed Above: T07

15. Special Handling Instructions and Additional Information: Contract # 90-PDH-394780-01 RO-125299

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR — Printed/Typed Name: WAYNE WALLACE — Signature: Wayne Wallace — Month 08 Day 30 Year 90

17. Transporter 1 Acknowledgement of Receipt of Materials — Date

TRANSPORTER — Printed/Typed Name: Ronald E Dempsey — Signature: Ronald E Dempsey — Month 08 Day 30 Year 90

18. Transporter 2 Acknowledgement of Receipt of Materials — Date

TRANSPORTER — Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

FACIL

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
RES (TX) Inc — Date

Printed/Typed Name: Donald Moore — Signature: Donald Moore — Month 08 Day 31 Year 90

ROLLINS
ENVIRONMENTAL SERVICES (TX) INC.
P.O. Box 609, Deer Park, TX 77536, 713/930-2300, FAX 713/930-2316

CONFIRMATION OF RECEIPT OF MANIFESTED WASTE

GENERATOR NAME/ADDRESS: Tennessee Valley Auth.
Muscle Shoals, Al

STATE MANIFEST DOCUMENT NO.: 002520004

DATE OF RECEIPT AT FACILITY: 8/31/90

Enclosed is your original, completely signed Manifest which indicates acceptance of material (with discrepancies as indicated, if any) by Rollins Environmental Services (TX) Inc.

Dana Milum
RES (TX), Inc.

9/4/90
Date

"CONTINUATION PAGE"

STATE MANIFEST DOCUMENT NO: 000252004

WPS #	GENERATOR'S "UNIQUE IDENTIFYING NO" (Max. 10 digits)	TYPE OF PCB WASTE	DATE OF REMOVAL FROM SERVICE FOR DISPOSAL	WEIGHT (IN KILOGRAMS)	PCB WASTE CODE
H047452-39	90-206	CAPACITORS IN DRUMS	6-4-90	192	PCB2
	90-207			146	
	90-208			192	
	90-209			98	
	90-217			192	
	90-218			183	
	90-211			192	
	90-210			183	
	90-219			183	
	90-213			183	
	90-214			183	
	90-215			183	
	90-205			124	
	90-203			91	
	90-204			186	
	90-220			183	
	90-216			151	
	90-212		6-4-90	192	
	90-094		6-20-90	170	
	90-092		4-11-90	107	
	90-093		5-2-90	141	
	90-027		6-14-90	105	
H047452-39	#9817		5-29-90	125	

"CONTINUATION PAGE"

STATE MANIFEST DOCUMENT NO: 002520004

WPS #	GENERATOR'S "UNIQUE IDENTIFYING NO" (Max. 10 digits)	TYPE OF PCB WASTE	DATE OF REMOVAL FROM SERVICE FOR DISPOSAL	WEIGHT (IN KILOGRAMS)	PCB WASTE CODE
H047452-34	90-003	CAPACITORS -IN DRUMS	5-29-90	9	PCB2
	#9765		5-4-90	184	
	9785		5-4-90	115	
	9780		5-4-90	158	
	9784		5-4-90	137	
	9775		5-4-90	159	
	9768		5-4-90	190	
	9783		5-4-90	150	
	9774		5-4-90	167	
	90-116		5-26-90	128	
	90-115		5-26-90	128	
	90-058		6-28-90	52	
	90-057		6-26-90	107	
	90-117		5-26-90	101	
	90-114		5-26-90	67	
	90-118		5-26-90	101	
	90-202		6-1-90	168	
	90-005		6-13-90	186	
	9809		4-25-90	73	
	9786		5-4-90	158	
	9769		5-4-90	164	
	9822		6-6-90	123	
	9821		6-8-90	89	

"CONTINUATION PAGE"

STATE MANIFEST DOCUMENT NO: 002529004

WPS #	GENERATOR'S "UNIQUE IDENTIFYING NO" (Max. 10 digits)	TYPE OF PCB WASTE	DATE OF REMOVAL FROM SERVICE FOR DISPOSAL	WEIGHT (IN KILOGRAMS)	PCB WASTE CODE
H047452-39	#9823	CAPACITORS IN DRUMS	6-8-90	83	PCB2
	90-054		6-19-90	175	
	90-055		6-19-90	147	
	90-043		5-11-90	75	
	90-044		5-11-90	101	
	9820		6-8-90	119	
	9824		6-8-90	62	
	9788		4-24-90	122	
	9789		4-24-90	94	
	9772		5-4-90	192	
	9781		5-4-90	159	
	9766		5-4-90	184	
	9767		5-4-90	184	
	9770		5-4-90	146	
	9808		4-25-90	74	
	9813		4-24-90	155	
	9807		4-25-90	76	
	90-016		5-4-90	188	
	90-015		5-4-90	137	
	9782		5-4-90	157	
	9778		5-4-90	184	
	9776		5-4-90	184	
	9779		5-4-90	159	

"CONTINUATION PAGE"

STATE MANIFEST DOCUMENT NO: 00 252004

WPS #	GENERATOR'S "UNIQUE IDENTIFYING NO" (Max. 10 digits)	TYPE OF PCB WASTE	DATE OF REMOVAL FROM SERVICE FOR DISPOSAL	WEIGHT (IN KILOGRAMS)	PCB WASTE CODE
HO 47452-39	#9771	CAPACITORS IN DRUM	5-4-90	126	PCB0
	#9773		5-4-90	148	
	9819		6-8-90	104	
	9818		6-8-90	138	
				10,272	

BILL OF LADING NUMBER

119935 Page 1

Ship To:
LLINS ENVIRONMENTAL SERVICES (TX) INC
VIRONMENTAL SERVICES, LLC 8811 BATTLEGROUND ROAD
DEER PARK TX 77536
Phone #: (713) 930-2315
EPA I.D. TXD053141370

Date 8/24/90
Cust. Ref. 00662-001
Order Ref. 02580

SIGNOR:
ENNESSEE VALLEY AUTHORITY
POWER STORES
AL HWY 133 AT WILSON DAM
MUSCLE SHOALS AL 35660

BILL TO:
TENNESSEE VALLEY AUTHORITY
P O BOX 1010 PSMS
MUSCLE SHOALS AL 35660

ion Contact WAYNE WALLACE
Phone # (205) 386-2935

Cust. EPA I.D. ALD984005007

Stream Number	Sub	#	Proper Shipping Name	Load Qty Pickup Qty	Con Typ
047452	39	X	RQ HAZARDOUS SUBSTANCE SOLID, NOS, (PCB), 9, NA 9188, (POLYCHLORINATED BIPHENYLS), PLACARD: NONE STEEL BOXES, SIN	22 80.00	SSD

rtification #1 — I certify that the above named materials are properly described and in proper conditioning for transportation according to regulations of all governing dies.

nsignor W. Wayne Wallace 8/30/90

rtification #3 — If this shipment is to be delivered to the consignee without recourse the consignor, the consignor shall sign the following statement "The carrier shall not ke delivery of this shipment without payment of freight and all other charges."

nsignor W. Wayne Wallace 8/30/90

Certification #2 — Received the above materials subject to tariffs and/or contract in effect on date of issuance hereof.

Driver _____ No. _____

Certification #4 — Received the above described property in good condition except as noted.

Consignee _____

cheduled Pickup Date: 8/30/90 Time: 0800

river 1 : _____ Tractor : _____ Arrive RES : _____ Date/Time

river 2 : _____ Trailer : _____ Depart RES : _____

arrier : _____ Type Equip: VAN Decal : _____ Arrive Cust: _____

acard #1 _____ Gross Wt: _____ Depart Cust: _____

acard #2 _____ Tare Wt : _____ Return RES : _____

ale Load _____ Net Wt : _____ Depart RES : _____

Billable Overnight Layover: _____

Billable Relay Hours _____ Picked up: _____

ccessories

ode Description BILL BIN Spotted: _____

Explain Delay _____

CET

CUSTOM ENVIRONMENTAL TRANSPORT
P.O. Box 2349
Wilmington, DE 19899

Location CET-TX

13244

Manifest #	Customer: RES (TX)	Order
Res B/L # 119935	To be billed: RES (TX)	Placed by:

Shipper:	Consignee:
TVA MUSCLE SHOALS AL.	

Generators Certification: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.

Shipper Signature Wayne Wallace Date 8/30/90

Loading	Date	Time
In	8/30	8:00
Start		2:30P
Stop		
Out		

Signature Wayne Wallace

DO NOT WRITE IN SHADED AREAS

Unloading	Date	Time
In		
Start		
Stop		
Out		

Signature

ITEM	STREAM NUMBER	SUF	H	PROPER SHIPPING NAME	LOAD QTY P/U QTY	CONT TYPE	WEIGHT	RATE	TOTAL
001	047452	39		RQ, HAZARDOUS SUBSTANCE SOLID, NOS, CRM-E	73	SD			
				Polychlorinated Biphenyls					

MISC. CHARGES

LOADING DET. EXPLANATION HRS @

UNLOADING DET. EXPLANATION HRS @

OTHER:

MILES	TARIFF	ITEM	TRACTOR	TRAILER	DATE	CARRIER	TYPE	TOTAL CHARGES
			56622	2001	8/30	CET	ETK	

SHIPMENT RECEIVED IN GOOD ORDER BY:

RECEIVER'S SIGNATURE

SHIPMENT RECEIVED IN GOOD ORDER BY:

DRIVER'S SIGNATURE

P 9/20/90

ROLLINS
ENVIRONMENTAL SERVICES (TX) INC.
P.O. Box 609, Deer Park, TX 77536, 713/930-2300, FAX 713/930-2316

September 20, 1990

TENNESSEE VALLEY AUTHORITY
PSC 1S 127A
MUSCLE SHOALS, AL 35660

ATTN: WAYNE WALLACE

Dear Mr. Wallace:

This is to certify the PCB capacitors referenced below were incinerated as of 9/19/90 at our Deer Park facility - Rollins Environmental Services (TX) Inc., P. O. Box 609, Deer Park, Texas 77536 (EPA ID# TXD055141378) in accordance with 40 CFR 761 as it pertains to incineration of PCB solids, liquids, and capacitors.

The attachment enclosed is a list of the unique identifying numbers for the following mentioned HO number and the destruction date of each.

TOTAL POUNDS	-23185
H. O. NUMBER	-47452-39
DATE RECEIVED	-8/31/90
B/L NUMBER	-119935
TWC MANIFEST NUMBER	-00252004

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

ROBERT S. WHITLOCK
OPERATIONS MANAGER

Please call (713) 930-2317 if there are any questions concerning the information on this Certificate of Destruction.

Rec'd 10/1/90

TVA HWSF No. 90-006 thru 90-014 9 Drums containing PCB Spill Cleanup Solids
State Manifest Doc. No. TVA-0003372 Line 11b
Date Received: 07/11/1990

Shipped for disposal on 09/24/1990
Manifest Doc. No. CWMA-562508
90-006 thru 014 listed on Continuation Page 2 of 4
Disposer: Chemical Waste Mgt., Emelle, AL
Dated Disposed: 09/24/1990
CD Received 10/10/1990

TAW JWC

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. 4 0 C F R P A R T 7 6 1 | Manifest Document No. H D 1 1

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Tennessee Valley Authority, Southern Region/Huntsville District Office, Huntsville, AL 35804-0328

4. Generator's Phone (205) 534-8434

A. State Manifest Document Number: TVA-003372

B. State Generator's ID:

5. Transporter 1 Company Name: TVA POWER SERVICE SHOPS

6. US EPA ID Number: A L 2 6 4 0 0 0 6 7 4 6

C. State Transporter's ID:

D. Transporter's Phone: (205) 386-2901

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address: TVA MUSCLE SHOALS POWER SERVICE CENTER, HAZARDOUS WASTE STORAGE FACILITY, AL HWY. 133 AT MUSCLE SHOALS, AL, MUSCLE SHOALS, AL 35660

10. US EPA ID Number: A L 2 6 4 0 0 9 0 0 0 5

G. State Facility's ID:

H. Facility's Phone: (205) 386-2135

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Substance, solid/liquid, NOS, ORM-E NA 9188 (PCB) RQ-1	RQ	1 2	DM CM	2 9 4	K	
b. Hazardous Substance, solid, NOS, ORM-E NA 9188 (PCB) RQ-1	RQ	9 9	DM CM	1 7 9 1	K	
c. ~~Hazardous Substance, solid/liquid, NOS, ORM-E NA 9188 (PCB) RQ-1~~	~~RQ~~		T		K	
d.						

J. Additional Descriptions for Materials Listed Above: 11a. 3 capacitors, PCB, Line Material, 50-kVAR, Bank 862, Huntsville 161-kV Sub., SN Z117493, C119321, C121062, Removed from service on 6/13/90. 11b. Rags, etc. used in cleanup and soil, PCB, Bank 862 at Huntsville 161-kV Sub., Removed 6/15/90

K. Handling Codes for Wastes Listed Above: 11c. 13 capacitors, Huntsville Storeroom, Removed from service on 7/10/90. See attached list for serial numbers.

15. Special Handling Instructions and Additional Information

HAULED ON TVA TRUCK, ~~REXXXXXX~~ PLACARDS ON TRUCK. EMERGENCY PROCEDURE INFORMATION GIVEN TO DRIVER ON TRUCK. DIKE AND CONTAIN IN CASE OF SPILL OR LEAKAGE.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
Kenneth E. Plunkett				

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Wayne Wallace CHARLES		9	11	90

Style F15REV-6 LABELMASTER, Div. of AMERICAN LABELMARK CO., CHICAGO, IL 60646

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

Hardwritten incoming log / outgoing

Date of shipment 9-24-90

HWSF Load Number 90P25

Contract # 89PPE-30182A RD 125420

Manifest # CAMA 562508 Manifest Returned 10-10-90

Material Shipped 67 drums Solid

Company Chem Waste

Certificate of Disposal Recevied 10-10-90

Released for payment 10-12-90

8894D

Chemical Waste Management, Inc.
Emelle Facility
P.O. Box 55
Emelle, Alabama 35459
EPA ID Number: ALD000622464
(205) 652-9721 - Document Control

TN VALLEY AUTHORITY
PO BOX 1010
HWSF/MSDC
MUSCLE SHOALS, AL 35661

ACKNOWLEDGEMENT OF RECEIPT OF WASTE SHIPMENT

Generator's name ....: TN VALLEY AUTHORITY
Generator's US EPA ID: AL2640090005

Enclosed is/are your Generator Number Two copy/copies for Alabama manifest number(s): CWMA - 562508.

This copy is to acknowledge that Chemical Waste Management, Inc., of Emelle, Alabama has received your shipment. As a requirement of 40 CFR 264.12 (b), this letter also serves to inform you that this facility has the proper permits and will accept your shipment upon completion of waste analysis procedures specified in the facility's Waste Analysis Plan and as determined in the approved waste profile submitted for this/these waste(s).

As of July 11, 1988, Chemical Waste Management, Inc, Emelle, Alabama, (ALD000622464), is operating under a RCRA permit issued by US E.P.A., Region IV and also interim status from the Alabama Department of Environmental Management, (ADEM).

If you have any questions regarding manifests, please call (205) 652-9721 and ask for "Document Control". For questions regarding Waste Approval, Profiles, or Lab Samples, ask for "Customer Service". If you are interested in arranging an audit or site tour, please ask for the "Customer Service Representative."

Sharon Stephens

Date: 10/08/90

TRP 414014

HAZARDOUS WASTE MANIFEST

(As Required By The Alabama Department of Environmental Management)

Please print or type. * (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039, Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L 2 6 4 0 0 9 0 0 5 9 0 | Manifest Document No. 1 2 5 | 2. Page 1 of 4 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: TENNESSEE VALLEY AUTHORITY, PSC 1S 127A, MUSCLE SHOALS, AL 35660

A. State Manifest Document Number: CWMA 562508

B. State Generator's ID:

4. Generator's Phone (205) 386-2135

5. Transporter 1 Company Name: CHEMICAL WASTE MANAGEMENT, INC. | 6. US EPA ID Number: A L D 9 9 2 0 1 2 6 8 1

C. State Transporter's ID:

D. Transporter's Phone: 205/652-9721

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address: CHEMICAL WASTE MANAGEMENT, INC., Emelle Facility, Alabama Highway 17 at Mile Marker 163, Emelle, Alabama 35459 | 10. US EPA ID Number: A L D 0 0 6 2 2 4 6 4

G. State Facility's ID:

H. Facility's Phone: 205 652-9721

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vo	Waste No.
a. RQ HAZARDOUS SUBSTANCE, SOLIDS, N.O.S., ORM-E NA9188 (PCB) RQ-1 ADEM 022091-2010 CWM Profile Number ALAD033181	067	DM	1554	K	PCB
b. CWM Profile Number					
c. CWM Profile Number					
d. CWM Profile Number					

J. Additional Descriptions for Materials Listed Above: STATE OF ORIGIN IS ALABAMA. FOR 1a 3 drums are 85gallon overpacks and 1 drum is a 35gallon drum 9/24/90 gdt. CONTRACT 89PPE-30182A RQ-125420 See Attached

K. Handling Codes for Wastes Listed Above: a. L b.

15. Special Handling Instructions and Additional Information

Work Order #: 900922021-01 Purchase Order #:

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
WAYNE WALLACE	Wayne Wallace	09	24	90

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
GRAFTON DEAN JR	Grafton Dean Jr	09	24	90

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space: Added See Attached to section J per Wayne Wallace 9/24/90 gdt

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name	Signature	Month	Day	Year

RIP TICKET NO. 020563 PAGE

CHEMICAL WASTE MANAGEMENT, INC.
DISPATCH/SHIPPING INSTRUCTIONS

DRIVER: G. Dean TRUCK: 1042
FLATBED __ VAN __ END DUMP __ TRLR1 414019
TANKER: MS SS RL ROLLOFF __ TRLR2 _____

SHIPPER: TRANSPORTER:
TENNESSEE VALLEY AUTHORITY EMELLE NON-BILLING PROFIT CNT.
POWER STORES RETURN_____

PHONE LEAVE_____

MUSCLE SHOALS AL 35661
FED EPA ID AL2640090005 NET_____

CONTAINER NO / TYPE	WASTE NAME DOT DESCRIPTION -- CLASS	PROFILE PERMIT	WEIGHT
67 / RM	PCB SOLIDS	APPROVED	
____ / ____	HAZARDOUS SUBSTANCE ORM-E	09/22/91	
____ / ____	NH0000	D33181ALA	EXP. 03/12/89
____ / ____			DOT ID. NA9188

CONTACT 1) WAYNE WALLACE 205/386-2135

DRIVER'S DIRECTIONS MUSCLE SHOALS, AL - CONTACT JACK HENSON @ 386-2571. PLANT LOCATED ON HWY 133 OUT OF MUSCLE SHOALS TOWARD WILSON DAM POWER WAREHOUSE.

DATE OF PICKUP 9/24 MANIFEST NO. 562508 P.O. NO. 900924021-01

TIME SUMMARY		COMMENTS
ARRIVE CUST	_____	_____
START LOAD	_____	_____
END LOAD	_____	_____
TOTAL TIME	_____	CUSTOMER SIGNATURE Wayne Wallace

DATE PREPARED 09/20/90 BY 001 DATE COMPLETED 9-27-90
DRIVER SIGNATURE Gilbert Dean

"CONTINUATION PAGE"

STATE MANIFEST DOCUMENT NO: CWMA562508

WPS #	GENERATOR'S "UNIQUE IDENTIFYING NO" (Max. 10 digits)	TYPE OF PCB WASTE	DATE OF REMOVAL FROM SERVICE FOR DISPOSAL	WEIGHT (IN KILOGRAMS)	PCB WASTE CODE
ALAD038181	90-001 ✓	PCB SOLIDS	5-31-90	40	PCB2
	90-002 ✓		↓	380	
	90-006 ✓		6-15-90	207	
	90-007			267	
	~~90-008~~			~~92~~	
	90-009			260	
	90-010			106	
	90-011			248	
	90-012			254	
	90-013 x			256	
	90-014 x		↓	206	
	90-017		6-13-90	140	
	90-018		6-20-90	249	
	90-019			337	
	90-020			345	
	90-021		↓	340	
	90-022		6-26-90	245	
	90-023		6-26-90	283	
	90-024		6-20-90	263	
	90-025 x		7-9-90	226	
	90-026 x		6-12-90	72	
	90-029 x		6-13-90	252	
↓	90-045 x	↓	5-31-90	352	↓

"CONTINUATION PAGE"

STATE MANIFEST DOCUMENT NO: CWMA562508

WPS #	GENERATOR'S "UNIQUE IDENTIFYING NO" (Max. 10 digits)	TYPE OF PCB WASTE	DATE OF REMOVAL FROM SERVICE FOR DISPOSAL	WEIGHT (IN KILOGRAMS)	PCB WASTE CODE
ALAD331161	90-046	PCB SOLIDS	5-11-90	331	PCB2
	90-047			154	
	90-048			320	
	90-049			302	
	90-050 X			236	
	90-061 X		6-29-90	102	
	90-321 X		6-21-90	48	
	90-088 X		6-26-90	66	
	90-319 X		7-2-90	36	
	90-107 X		7-26-90	44	
	90-157 X		7-12-90	181	
	90-191 X		7-20-90	221	
	90-192 X		7-26-90	54	
	90-226 X		7-31-90	274	
	90-227 X			314	
	90-324 X		7-24-90	33	
	90-266 X		8-2-90	185	
	90-268 X		7-19-90	76	
	90-278 X		7-25-90	229	
	90-279 X			333	
	90-280 X		8-15-90	28	
	90-320		8-10-90	29	
	90-289 X		8-8-90	97	

"CONTINUATION PAGE"

STATE MANIFEST DOCUMENT NO: CWMA562508

WPS #	GENERATOR'S "UNIQUE IDENTIFYING NO" (Max. 10 digits)	TYPE OF PCB WASTE	DATE OF REMOVAL FROM SERVICE FOR DISPOSAL	WEIGHT (IN KILOGRAMS)	PCB WASTE CODE
ALA033181	90-299 X	- PCB SOLIDS	8-16-90	93	PCB2
	90-300 X			29	
	90-325 X			50	
	90-326 X			50	
	90-328 X			50	
	9815 X		12-15-90	27	
	9816		6-11-90	90	
	90-293 X		8-20-90	90	
	90-294 X			349	
	90-295 X			353	
	90-296 X			258	
	90-297 X			211	
	90-342 X		8-14-90	58	
	90-323 X		7-31-90	38	
	90-322 X		7-24-90	32	
	90-298 X		8-20-90	25	
	90-335 X		8-28-90	112	
	90-361 X		8-30-90	365	
	90-362 X			88	
	90-363 X			31	
	90-365 X		9-11-90	205	

CHEMICAL WASTE MANAGEMENT, INC.
Emelle Facility
ALD000622464
P.O. Box 55
Emelle, Alabama 35459
Phone 205/652-9721

Tennessee Valley Authority
PSC 1S 127A
Muscle Shoals, AL 35660

CERTIFICATE OF DISPOSAL

Chemical Waste Management, Inc. has received PCB material from Tennessee Valley Authority described on Alabama Hazardous Waste Manifest number CWMA 562508.

Chemical Waste Management, Inc. hereby certifies that the above described material {excluding PCB liquids} was landfilled on the 24th day of September, 1990 in compliance with State and Federal regulations.

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations {18U.S.C. 1001 and 15U.S.C. 2615}, I certify that the information contained in or accompanying this document is true, accurate and complete. As to the identified section{s} of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate and complete.

Glory F. McAboy

Glory McAboy, Document Control Supervisor

October 2, 1990
Date Issued

Temple, Bonnie

From: Smithson, Kenton D [kdsmithson@tva.gov]
Sent: Tuesday, January 31, 2012 8:11 AM
To: Temple, Bonnie
Cc: Landers, Tresha A; Westmoreland, John B Jr; Smithson, Kenton D
Subject: FW: US TVA HUNTSVILLE PRIMARY SUBSTATION

Hello Bonnie,
Tresha forwarded your email to me for a response. Since the TVA portion of the Huntsville Primary Substation is a CESQG, TVA has not been issued an EPA ID number for the site. TVA has used 40CFRPART761 in item 1 Generator US EPA ID Number on the DOT Uniform Hazardous Waste Manifest when shipping PCB equipment or waste from the site. You will see this on the manifest dated 7/1/90 for the spill incident we discussed that occurred in 1990, the last page of the handout from the meeting . When shipping small quantities of hazardous waste, TVA has also used CESQG in item 1 as the Generator US EPA ID Number.

The DOT HW manifest in the handout material identifies the transporter and receiving facility US EPA ID numbers. For wastes being shipped from this site, the TVA Power Service Shop is usually the transporter, EPA ID number AL2640006746, and the TVA Hazardous Waste Storage Facility in Muscle Shoals is the designated facility receiving the wastes, EPA ID number AL2640090005.

The DOT manifest typically identifies the Transmission Service Center mailing address on the top of the manifest rather than the site. The location of the waste shipment, e.g., Huntsville 161-kV Substation, would be identified in Section J on the manifest. A review of our site locations also identified 948 Monroe St., Huntsville, AL 35804-0328 as the site address; note the slight difference in zip code from that identified by Huntsville Utilities.

If there are any further questions, please don't hesitate to contact me.

Kent Smithson
Environmental Program Manager
TVA Environmental Permits and Compliance, Chattanooga
(423) 751-4656

From: Temple, Bonnie [mailto:BLT@adem.state.al.us]
Sent: Thursday, January 26, 2012 3:37 PM
To: Landers, Tresha A
Subject: US TVA HUNTSVILLE PRIMARY SUBSTATION

Hello Tresha. Hope you aren't getting too much rain. I do have a couple of questions.

When I was at our meeting, I didn't write down the EPA ID number you had for the TVA Huntsville Primary Substation. I would like to set up this site's file using both numbers so we can correctly identify the site. On what type of document was the EPA ID number placed? RCRA, TSCA, etc.?

Huntsville Utilities uses "948 Monroe Street, Huntsville, AL 35801" as the site address. Do you use the same address?

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section

ADEM -- Land Division
Phone: (334) 271-7703
Fax: (3340 279-3050

ADEM LAND, ENVIRONMENTAL SERVICES BRANCH, SITE ASSESSMENT UNIT:
TELEPHONE CONVERSATION RECORD

Date:	January 27, 2012	TVA Huntsville Primary Substation C #0405851
Time:	1008	
Conservation with:	Mr. Sean Landry, Huntsville Electrical Foreman, Office: (256) 851-3504; Cell: (256) 426-8086	
Facility or Company:	US TVA Huntsville Primary Substation 948 Monroe Street Huntsville, Madison County, Alabama 35801	
Regarding:	Discuss property map, flooding & train activity	

1/27/2012 (1008): Left message.

(1430): There are three switch yards. The transformers are part of the central switch yard. The location of the PCB spill is the capacitor bank.

The Substation is on higher ground; therefore, flooding from the creek north of the substation does not reach the switch yard. Trains run on the track along the southeast corner of the property.

B. Temple

From: Elder, Brian K [bkelder@tva.gov]
Sent: Tuesday, December 13, 2011 3:02 PM
To: Temple, Bonnie
Cc: Landers, Tresha A; Anderson, Cynthia M; Choate, Kimberly D
Subject: RE: US TVA HUNTSVILLE PRIMARY SUBSTATION

Attachments: Huntsville 161-kV Sub PCB Spill Cleanup 6-13-90.pdf
Bonnie,

On searching our files, we identified a PCB spill involving capacitors that occurred at the TVA Huntsville, AL 161-kV Substation on June 13, 1990. We think this may be the event identified by EPA Region IV. The event was reported to the National Response Center at 4:30 pm EST on June 13, 1990, Event Number 26741. I have attached a PCB spill cleanup report along with a manifest showing shipment of spill cleanup materials. The attached cleanup report along with sample results and diagrams were forwarded to Ms. Connie Landers, EPA Region 4, on July 13, 1990. If you would like copies of the analytical results and diagrams, we can forward that separately by mail.

We have not identified any other documentation of spill events at this site that would qualify under CERCLA. If you have questions on the report or would like to receive copies of the analytical data and diagrams, just let me know.

Would the third week of January be acceptable for a site visit?

Keith
B. Keith Elder, PE
Senior Manager PSO Environmental Support
TVA Environmental Permits & Compliance
Office: 423-751-4094
Cell: 423-240-1424
Fax: 423-751-6083

From: Temple, Bonnie [mailto:BLT@adem.state.al.us]
Sent: Tuesday, December 06, 2011 5:01 PM
To: Landers, Tresha A; Elder, Brian K; Anderson, Cynthia M
Subject: US TVA HUNTSVILLE PRIMARY SUBSTATION

Merry Christmas! I am conducting a CERCLA Preliminary Assessment for the US TVA HUNTSVILLE PRIMARY SUBSTATION in Huntsville, Alabama, for US EPA Region 4. The site was discovered 12/12/1992 or around that d ate. I'm not sure what activity occurred, but there was Federal Enforcement taken at the site. I am looking for documentation concerning this activity and to set up a site inspection of the area. I appreciate any information you can give me. Thanks.

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section
ADEM -- Land Division
Phone: (334) 271-7703
Fax: (3340 279-3050

Huntsville 161-kV Substation
Bank 862
PCB Spill
June 13, 1990

On June 13, 1990 at approximately 1330 hour the Wilson Dispatcher was notified of spill occurring on Huntsville 161-kV Substation capacitor Bank 862.

Capacitor Bank 862 was being switched into service because of need to raise voltage due to load increase. A bird in the cap bus caused an arc between the capacitors, causing a hole in the capacitors, resulting in a spill of PCB oil.

At 1430 hours T&CS Division, Doug Gallant was notified of spill. EPA was notified at approx. 1630 hours.

Approximately 10 pounds of PCB, <1 gallon, was spilled from the capacitor Bank 862, Serial No.'s C121064, C119321, C121062, 50-kVAR, 7200 Volt, Line Material, Cat. #CP11AH

PCB spill at Huntsville primary was inside a fenced capacitor area with a six-inch limestone gravel ground cover. Total area removed was approximately 4' x 4' x 3'.

At 1430 cleanup began of contaminated area, screening test taken after initial cleanup, soil samples and wipe tests were taken and sent to LAB for processing, same day. Results were reported on 6/15, additional cleanup was done along with samples and wipe tests taken, carried to lab on 6/16/90 with results given on 6/17. Additional cleanup was completed, samples taken and carried to LAB on 6/18, results given on 6/19.

Notified Lew Sharpe on 6/21/90, that results were within proper guidelines for cleanup, new dirt and gravel being used to cover area.

Copies of the results are attached including diagrams of area of spill.

Attachment

Kenneth E. Plunkett

KEP:MR

PCB SPILL CLEANUP CHECKLIST AND REPORT

K02 900822-301

CHECKLIST (Also fill out the FIELD SPILL section of this form)

ISOLATION

Is fluid still being released to environment?
- ☐ YES - take appropriate measures to eliminate any further leakage.
- ☒ NO

Can spilled fluid enter a waterway, crop of grazing land, sanitary sewer or drain?
- ☐ YES - stop flow with use of an absorbent or boom, immediately report according to T&CS PCB spill cleanup procedure
- ☒ NO

BARRICADE

Is spill area open to public access?
- ☐ YES - barricade the spill area plus a 3 foot buffer zone to eliminate any unauthorized access. Initiate cleanup.
- ☒ NO

Is rain likely before completion of spill cleanup?
- ☐ YES - cover spill area with plastic
- ☒ NO

NOTIFICATION

Immediately report spill according to T&CS Spill Clean Up Procedure

Date & time T&CS-Transmission Support Department notified 6/13/90 @1430 hr.

Is this a significant PCB spill? (Greater than 1 lb PCB)
- ☒ YES
- ☐ NO

CLEANUP GUIDELINES

a. Obtain all cleanup equipment.
b. Put on appropriate protective clothing (e.g., gloves, shoe covers, coveralls).
c. Remove all visible traces of contaminated soil to be minimum depth of one foot plus a one foot buffer zone around the spill area.
d. Place soil and any ruptured or bulged equipment in sealed drums.
e. Wipe down any contaminated solid surfaces (e.g., poles, equipment, concrete) three times, with solvent.
f. Wash any contaminated cleanup equipment (e.g., shovels) three times with solvent.
g. Place all contaminated rags and clothing in disposal container.
h. Mark all disposal containers with dated PCB label.
i. Transport all PCB disposal items to temporary storage area.
j. Complete all reporting requirements.
k. Transport to TVA Hazardous Waste Storage Facility at Power Stores Muscle Shoals.

FIELD SPILL REPORT

Notified (Case No. 26741) National Response Group 6/13/90 @4:30 P.M. EST.

TYPE OF EQUIPMENT
- ☒ Capacitor
- ☐ Power Transformer
- ☐ Distribution Transformer
- ☐ Others (identify) _____

LOCATION:
- ☐ Non-Substation
- ☒ Substation
- ☐ Distance to residential/commercial area 200 ft.
- ☐ Distance to nearest stream garden or pasture 400 ft.

TYPE OF FLUID SPILLED:
- ☒ PCB
- ☐ Mineral Oil
- ☐ Other: _____

DATE OF SPILL	TIME OF SPILL (HOUR)	CHECK THIS IF ESTIMATED
6/13/90	1252 hr.	
DATE REPORTED TO EPA	TIME REPORTED TO EPA (HOUR)	
6/13/90	4:40 p.m. est (left message)	
DATE OF CLEANUP (start)	TIME OF CLEANUP (HOUR) (start)	
6/13/90	1430 hour	
DATE OF CLEANUP (finish)	TIME OF CLEANUP (HOUR) (finish)	
6/18/90	0700 hour	

Final Rpt to EPA: 1020 hr 6/14/90

PCB concentration (if known) > 500 ppm (Attach lab results)

Screening Test Kit results:
- ☒ ◄ 50 ppm *
- ☐ 50-500 ppm
- ☐ ► 500 ppm

*after initial cleanup

* Approximate volume of PCB fluid spilled: < 1 gallons. Pounds of PCB 10

Has fluid entered a waterway, sanitary sewer or drain? ☐ YES ☒ NO

Has fluid spilled on any public or private property? ☐ YES ☒ NO (If yes, describe property below)

*On capacitors use 25% of nameplate fluid. Use 12.5 pounds per gallon of PCB's.

SPILL LOCATION:
161-kV Cap Bank

Substation
Huntsville Primary

Huntsville, AL
CITY STATE

Approximate depth and amount of soil removed: Depth 12 inches Amount 16 cubic feet

Has fluid spilled on any man-made hard surfaces? ☒ YES ☐ NO (If yes, describe surface cleanup below)

Wire brushed hard surfaces, cleaned with acetone.

Was EPA notified of spill? ☒ YES ☐ NO Name of EPA CONTACT EPA Region 4

Number of drums for disposal 10 Was fire associated with spill ☐ YES ☒ NO

Draw diagram of spill site in relationship to fence, garden, pasture, water, sewer, and/or residential/commercial area (use second sheet, if necessary). Identify equipment, describe cleanup area, unusual circumstances, etc. Include dimensions and sample point locations.

Diagram and report attached.

POST CLEANUP SAMPLING RESULTS (attach lab test reports)

No. of Soil Samples taken: 14
Soil Sample Results
Reports of results are attached

No. of Wipe Samples taken: 3
Wipe Sample Results:
Reports of results are attached

GENERATOR'S CERTIFICATION: I HEREBY DECLARE THAT ALL EPA SPILL CLEANUP REQUIREMENTS HAVE BEEN MET AT THE SPILL SITE REPORTED HEREIN AND THAT THE INFORMATION CONTAINED IN THIS SPILL RECORD IS TRUE TO THE BEST OF MY KNOWLEDGE.

PRINTED/TYPED NAME & POSITION OF TITLE	SIGNATURE	DATE: MONTH/DAY/YEAR
On-site coordinator: Kenneth E. Plunkett, Elect. Fmn	Kenneth E. Plunkett	06/27/90
Printed/Typed Name-Region Manager: Vernon McDonald, Regional Manager	SIGNATURE	DATE: MONTH/DAY/YEAR 6/27/90

TAW JWC

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No: 4 0 C F R P A R T 7 6 1 — Manifest Document No: H D 1 1

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Tennessee Valley Authority
Southern Region/Huntsville District Office,
Huntsville, AL 35804-0328

4. Generator's Phone (205) 534-8434

A. State Manifest Document Number: TVA 0003372

B. State Generator's ID:

5. Transporter 1 Company Name: TVA POWER SERVICE SHOPS

6. US EPA ID Number: A L 2 6 4 0 0 0 6 7 4 6

C. State Transporter's ID:

D. Transporter's Phone: (205) 386-2901

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address:
TVA MUSCLE SHOALS POWER SERVICE CENTER
HAZARDOUS WASTE STORAGE FACILITY
AL HWY. 133 AT MUSCLE SHOALS, AL
MUSCLE SHOALS, AL 35660

10. US EPA ID Number: A L 2 6 4 0 0 9 0 0 0 5

G. State Facility's ID:

H. Facility's Phone: (205) 386-2135

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Substance, solid/liquid, NOS, ORM-E NA 9188 (PCB) RQ-1	RQ	1 2	DM CM	294	K	
b. Hazardous Substance, solid, NOS, ORM-E NA 9188 (PCB) RQ-1	RQ	9	DM CM	1791	K	
c. ~~Hazardous Substance, solid/liquid, NOS, ORM-E NA 9188 (PCB) RQ-1~~	~~RQ~~	T	CW	5621	K	
d.						

J. Additional Descriptions for Materials Listed Above
lla. 3 capacitors, PCB, Line Material, 50-kVAR, Bank 862, Huntsville 161-kV Sub., SN Z117493, C119321,C121062,Removed from service on 6/13/90. llb. Rags, etc. used in cleanup and soil, PCB, Bank 862 at Huntsville 161-kV Sub., Removed 6/15/90

K. Handling Codes for Wastes Listed Above
~~llc. 13 capacitors, Huntsville Storeroom, Removed from service on 7/10/90. See attached list for serial numbers.~~

15. Special Handling Instructions and Additional Information

HAULED ON TVA TRUCK, ~~EXAEAARE~~ PLACARDS ON TRUCK. EMERGENCY PROCEDURE INFORMATION GIVEN TO DRIVER ON TRUCK. DIKE AND CONTAIN IN CASE OF SPILL OR LEAKAGE.

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name	Signature	Month	Day	Year
Kenneth E. Plunkett				

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Wayne Wallace		9	11	90

Temple, Bonnie

From: Temple, Bonnie
Sent: Tuesday, December 13, 2011 11:08 AM
To: 'Landers, Tresha A'
Cc: Elder, Brian K; Smithson, Kenton D; Choate, Kimberly D
Subject: RE: US TVA HUNTSVILLE PRIMARY SUBSTATION

Tresha, thank you very much for your response! I will wait for the information your people are sending before I set up the date for my site inspection. I expect January would be a much better time frame for that. I look forward to meeting with you in January. Have a Merry Christmas!

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section
ADEM -- Land Division
Phone: (334) 271-7703
Fax: (3340 279-3050

From: Landers, Tresha A [mailto:talanders@tva.gov]
Sent: Tuesday, December 13, 2011 10:09 AM
To: Temple, Bonnie
Cc: Elder, Brian K; Smithson, Kenton D; Choate, Kimberly D
Subject: RE: US TVA HUNTSVILLE PRIMARY SUBSTATION

Hi

I am the environmental representative for the Huntsville Primary Substation. I can be reached at 865-805-5455. In reference to your initial inquiry Mr. Kent Smithson and Mr. Keith Elder are preparing a response in reference to activities around the timeframe you are requesting. I will be glad to provide any assistance I can and discuss Huntsville Primary with you. Thank you. Tresha Landers

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From: Temple, Bonnie [mailto:BLT@adem.state.al.us]
Sent: Tuesday, December 06, 2011 5:01 PM
To: Landers, Tresha A; Elder, Brian K; Anderson, Cynthia M
Subject: US TVA HUNTSVILLE PRIMARY SUBSTATION

Merry Christmas! I am conducting a CERCLA Preliminary Assessment for the US TVA HUNTSVILLE PRIMARY SUBSTATION in Huntsville, Alabama, for US EPA Region 4. The site was discovered 12/12/1992 or around that d ate. I'm not sure what activity occurred, but there was Federal Enforcement taken at the site. I am looking for documentation concerning this activity and to set up a site inspection of the area. I appreciate any information you can give me. Thanks.

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section
ADEM -- Land Division
Phone: (334) 271-7703
Fax: (3340 279-3050

Temple, Bonnie

From: Elder, Brian K [bkelder@tva.gov]
Sent: Tuesday, December 06, 2011 3:39 PM
To: Temple, Bonnie
Cc: TVAINFO; Taylor, Wilson III; Anderson, Cynthia M; Landers, Tresha A
Subject: FW: Ombudsman - US TVA HUNTSVILLE PRIMARY SUBSTATION

Ms. Temple,

The Environmental Contacts for the TVA Huntsville Primary Substation are as follows:

Tresha Landers
Environmental Engineer, Environmental Permits & Compliance - Power System Operations
Office: 423-365-1103
Cell: 865-805-5455
talanders@tva.gov

Keith Elder
Senior Manager, Environmental Permits & Compliance - Power System Operations
1101 Market Street, MR 4B
Chattanooga, TN 37402
Office: 423-751-4094
Cell: 423-240-1424
bkelder@tva.gov

Cynthia Anderson
Senior Manager, Environmental Permits & Compliance - Water & Waste Compliance
1101 Market Street, BR 4A
Chattanooga, TN 37402
423-751-4878
cmanderson@tva.gov

From: Temple, Bonnie [mailto:BLT@adem.state.al.us]
Sent: Tuesday, December 06, 2011 10:09 AM
To: TVAINFO
Subject: Ombudsman - US TVA HUNTSVILLE PRIMARY SUBSTATION

I am trying to reach the environmental manager for the US TVA HUNTSVILLE PRIMARY SUBSTATION. I have searched the web and cannot figure out who to contact. My only other alternative would be to travel to Huntsville to find out who is in charge of this site. Any assistance is appreciated.

Bonnie Temple, ESS
Environmental Services Branch
Assessment Section
ADEM -- Land Division
Phone: (334) 271-7703
Fax: (3340 279-3050

John Westmoreland
Site manager

Madison Substation
Huntsville Service Center
396 Shields Rd
Huntsville, AL 35811